



Service Manual

MODEL: GWH09MB-A3DNA3C
GWH12MB-A3DNA3C
(Refrigerant R410A)

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Table of Contents

Part I : Technical Information	1
1. Summary	1
2. Specifications	2
2.1 Specification Sheet	2
2.2 Operation Characteristic Curve	6
2.3 Capacity Variation Ratio According to Temperature	6
2.4 Cooling and Heating Data Sheet in Rated Frequency	7
2.5 Noise Curve	7
3. Outline Dimension Diagram	8
3.1 Indoor Unit	8
3.2 Outdoor Unit	8
4. Refrigerant System Diagram	9
5. Electrical Part	10
5.1 Wiring Diagram	10
5.2 PCB Printed Diagram	12
6. Function and Control	14
6.1 Remote Controller Introduction	14
6.2 Brief Description of Modes and Functions	18
Part II : Installation and Maintenance	23
7. Notes for Installation and Maintenance	23
8. Installation	25
8.1 Installation Dimension Diagram	25
8.2 Installation Parts-checking	27
8.3 Selection of Installation Location	27
8.4 Electric Connection Requirement	27
8.5 Installation of Indoor Unit	27
8.6 Installation of Outdoor Unit	30
8.7 Vacuum Pumping and Leak Detection	31
8.8 Check after Installation and Test Operation	31

9. Maintenance32

 9.1 Flashing LED of Indoor/Outdoor Unit and Primary Judgement32

 9.2 Troubleshooting for Main Malfunction39

 9.3 Maintenance Method for Normal Malfunction.....52

10. Exploded View and Parts List54

 10.1 Indoor Unit.....54

 10.2 Outdoor Unit56

11. Removal Procedure60

 11.1 Removal Procedure of Indoor Unit60

 11.2 Removal Procedure of Outdoor Unit63

Appendix:67

 Appendix 1: Reference Sheet of Celsius and Fahrenheit67

 Appendix 2: Configuration of Connection Pipe.....67

 Appendix 3: Pipe Expanding Method68

 Appendix 4: List of Resistance for Temperature Sensor69

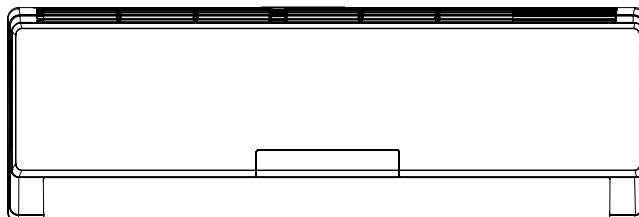
 Appendix 5: Wired Controller72

Part I : Technical Information

1. Summary

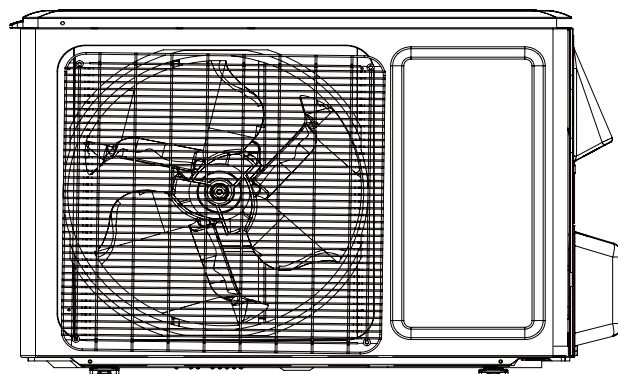
Indoor Unit:

GWH09MB-A3DNA3C/I
GWH12MB-A3DNA3C/I



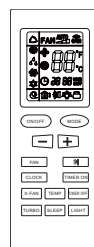
Outdoor Unit:

GWH09MB-A3DNA3C/O
GWH12MB-A3DNA3C/O



Remote Controller:

YB1FAF(MOTO)



2. Specifications

2.1 Specification Sheet

Model			GWH09MB-A3DNA3C
Product Code			CB171010200
Power Supply	Rated Voltage	V~	115
	Rated Frequency	Hz	60
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity(Min~Max)		Btu/h	9000(2559~11600)
Heating Capacity(Min~Max)		Btu/h	9500(2423~12966)
Cooling Power Input(Min~Max)		W	680(150~1000)
Heating Power Input(Min~Max)		W	700(170~1250)
Cooling Current Input		A	8.2
Heating Current Input		A	8.5
Rated Input		W	1250
Rated Current		A	13.5
Air Flow Volume (SH/H/M/L)		CFM	335/282/247/206
Dehumidifying Volume		Pint/h	1.69
EER		(Btu/h)/W	13.24
COP		(Btu/h)/W	13.57
SEER			22
HSPF			9.8
Application Area		yd ²	14.4-21.5
Indoor Unit	Indoor Unit Model		GWH09MB-A3DNA3C/I
	Indoor Unit Product Code		CB171N10200
	Indoor Unit Fan Type		Cross-flow
	Indoor Unit Fan Diameter Length(DXL)	inch	Φ3 5/8X25 2/5
	Cooling Speed (SH/H/M/L)	r/min	1290/1100/950/750
	Heating Speed (SH/H/M/L)	r/min	1320/1200/1050/950
	Indoor Unit Fan Motor Power Output	W	15
	Indoor Unit Fan Motor RLA	A	0.3
	Indoor Unit Fan Motor Capacitor	μF	/
	Heater Power Input	W	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	inch	Φ2/7
	Evaporator Row-fin Gap	inch	2-1/16
	Evaporator Coil Length (LXDXW)	inch	25 2/5X1X10 1/2
	Swing Motor Model		MP24AA
	Swing Motor Power Output	W	2.0
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/M/L)	dB (A)	40/37/35/32
	Sound Power Level (SH/H/M/L)	dB (A)	50/47/45/32
	Dimension (WXHxD)	inch	33 1/4X10 5/6X7
	Dimension of Carton Box (LXWXH)	inch	36X10X14
	Dimension of Package (LXWXH)	inch	36 1/7X 10 1/6X14 4/7
	Indoor Unit Net Weight	lb	20.9
	Indoor Unit Gross Weight	lb	27.6

Outdoor Unit	Outdoor Unit Model		GWH09MB-A3DNA3C/O
	Outdoor Unit Product Code		CB171W10200
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-A091zE190
	Compressor Oil		FVC68D/RB68EP
	Compressor Type		Rotary
	Compressor LRA.	A	/
	Compressor RLA	A	14
	Compressor Power Input	W	942
	Compressor Overload Protector		1NT11L-6233
	Throttling Method		Electron expansion valve
	Set Temperature Range	°F	61~86
	Cooling Operation Ambient Temperature Range	°F	-0.4~109
	Heating Operation Ambient Temperature Range	°F	5~75.2
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	inch	Φ3/8
	Condenser Rows-fin Gap	inch	2-1/16
	Condenser Coil Length (LXDXW)	inch	29 2/5X1 3/4X20
	Outdoor Unit Fan Motor Speed	rpm	900
	Outdoor Unit Fan Motor Power Output	W	30
	Outdoor Unit Fan Motor RLA	A	0.46
	Outdoor Unit Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	CFM	1059
	Outdoor Unit Fan Type		Axial-flow
	Outdoor Unit Fan Diameter	inch	Φ15 3/4
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Design Pressure(High)	PSIG	550
	Design Pressure(Low)	PSIG	240
	Sound Pressure Level (H/M/L)	dB (A)	52/-/-
	Sound Power Level (H/M/L)	dB (A)	62/-/-
	Dimension (WXHXD)	inch	33 2/5X21 1/4X12 3/5
	Dimension of Carton Box (LXWXH)	inch	34 4/7X14 1/6X22 5/6
	Dimension of Package (LXWXH)	inch	34 2/3X14 2/7X23 3/7
	Outdoor Unit Net Weight	lb	73.9
	Outdoor Unit Gross Weight	lb	82.7
	Refrigerant		R410A
	Refrigerant Charge	oz	41.3
Connection Pipe	Connection Pipe Length	ft	24.6
	Connection Pipe Gas Additional Charge	oz/ft.	0.22
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	3/8
	Max Distance Height	ft	32.8
	Max Distance Length	ft	49.2

The above data is subject to change without notice. Please refer to the nameplate of the unit.

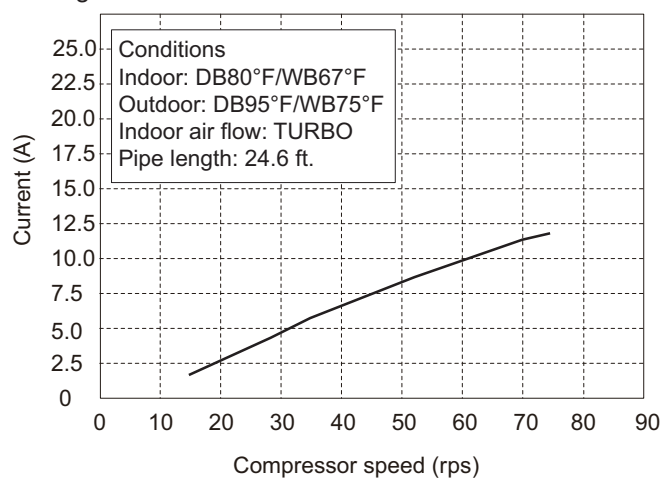
Model			GWH12MB-A3DNA3C
Product Code			CB171010100
Power Supply	Rated Voltage	V~	115
	Rated Frequency	Hz	60
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity(Min~Max)		Btu/h	12000(2661~13307)
Heating Capacity(Min~Max)		Btu/h	13000(2900~13989)
Cooling Power Input(Min~Max)		W	1000(150~1180)
Heating Power Input(Min~Max)		W	1200(180~1350)
Cooling Current Input		A	12
Heating Current Input		A	14.5
Rated Input		W	1400
Rated Current		A	15
Air Flow Volume (SH/H/M/L)		CFM	335/282/247/206
Dehumidifying Volume		Pint/h	2.96
EER		(Btu/h)/W	12
COP		(Btu/h)/W	10.83
SEER			20
HSPF			9.6
Application Area		yd ²	19.1-28.7
Indoor Unit	Indoor Unit Model		GWH12MB-A3DNA3C/I
	Indoor Unit Product Code		CB171N10100
	Indoor Unit Fan Type		Cross-flow
	Indoor Unit Fan Diameter Length(DXL)	inch	Φ3 5/8X25 2/5
	Cooling Speed (SH/H/M/L)	r/min	1290/1100/950/750
	Heating Speed (SH/H/M/L)	r/min	1320/1200/1050/950
	Indoor Unit Fan Motor Power Output	W	15
	Indoor Unit Fan Motor RLA	A	0.3
	Indoor Unit Fan Motor Capacitor	μF	/
	Heater Power Input	W	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	inch	Φ2/7
	Evaporator Row-fin Gap	inch	2-1/16
	Evaporator Coil Length (LXDXW)	inch	25 2/5X1X10 1/2
	Swing Motor Model		MP24AA
	Swing Motor Power Output	W	2.0
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/M/L)	dB (A)	42/39/36/33
	Sound Power Level (SH/H/M/L)	dB (A)	52/49/46/43
	Dimension (WXHXD)	inch	33 1/4X10 5/6X7
	Dimension of Carton Box (LXWXH)	inch	36X10X14
	Dimension of Package (LXWXH)	inch	36 1/7X 10 1/6X14 4/7
	Indoor Unit Net Weight	lb	20.9
	Indoor Unit Gross Weight	lb	27.6

Outdoor Unit	Outdoor Unit Model		GWH12MB-A3DNA3C/O
	Outdoor Unit Product Code		CB171W10100
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-A091zE190
	Compressor Oil		FVC68D/RB68EP
	Compressor Type		Rotary
	Compressor LRA.	A	/
	Compressor RLA	A	15
	Compressor Power Input	W	942
	Compressor Overload Protector		1NT11L-6233
	Throttling Method		Electron expansion valve
	Set Temperature Range	°F	61~86
	Cooling Operation Ambient Temperature Range	°F	-0.4~109
	Heating Operation Ambient Temperature Range	°F	5~75.2
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	inch	Φ3/8
	Condenser Rows-fin Gap	inch	2-1/16
	Condenser Coil Length (LXDXW)	inch	29 2/5X1 3/4X22
	Outdoor Unit Fan Motor Speed	rpm	900
	Outdoor Unit Fan Motor Power Output	W	30
	Outdoor Unit Fan Motor RLA	A	0.46
	Outdoor Unit Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	CFM	1177
	Outdoor Unit Fan Type		Axial-flow
	Outdoor Unit Fan Diameter	inch	Φ15 3/4
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Design Pressure(High)	PSIG	550
	Design Pressure(Low)	PSIG	240
	Sound Pressure Level (H/M/L)	dB (A)	52/-/-
	Sound Power Level (H/M/L)	dB (A)	62/-/-
	Dimension (WXHXD)	inch	33 2/5X23 1/3X12 3/5
	Dimension of Carton Box (LXWXH)	inch	34 4/7X14 1/6X24 4/5
	Dimension of Package (LXWXH)	inch	34 2/3X14 2/7X25 2/5
	Outdoor Unit Net Weight	lb	76.1
	Outdoor Unit Gross Weight	lb	84.9
	Refrigerant		R410A
	Refrigerant Charge	oz	45.9
Connection Pipe	Connection Pipe Length	ft	24.6
	Connection Pipe Gas Additional Charge	oz/ft.	0.22
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	3/8
	Max Distance Height	ft	32.8
	Max Distance Length	ft	65.6

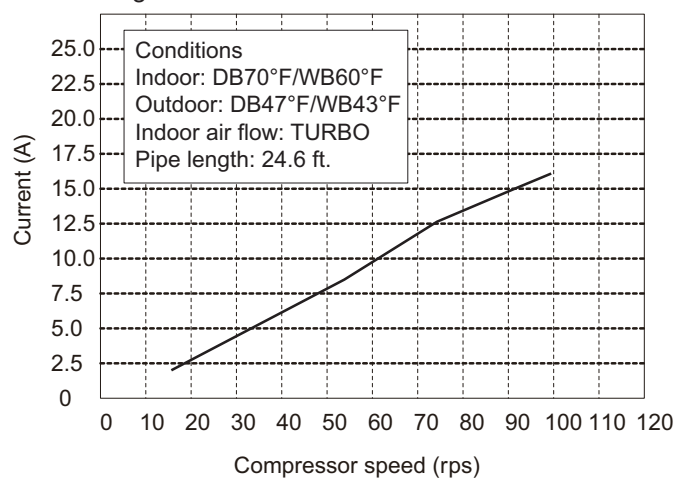
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve

Cooling:

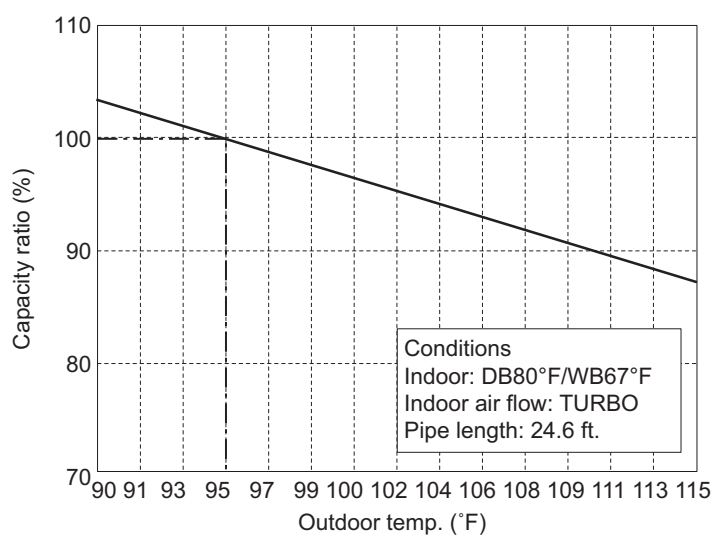


Heating:

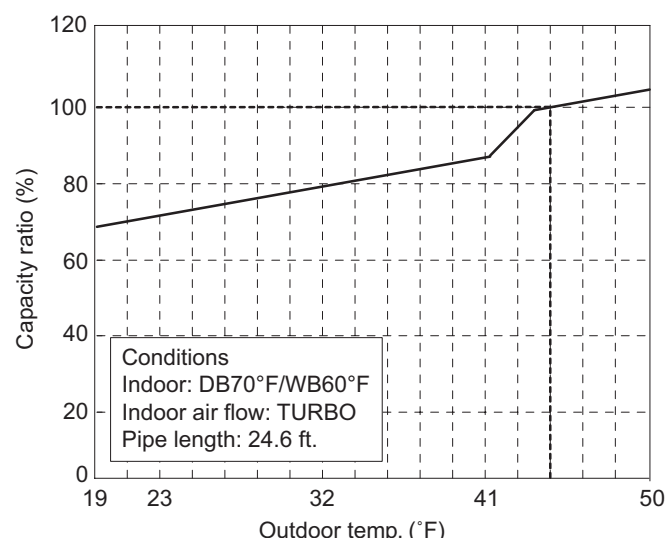


2.3 Capacity Variation Ratio According to Temperature

Cooling:



Heating:



2.4 Cooling and Heating Data Sheet in Rated Frequency

Cooling

Rated cooling condition(°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor		P (MPa)	T1 (°F)	T2 (°F)			
80/67	95/75	09K	0.9 to 1.2	55 to 58	96 to 101	TURBO	High	49
		12K		53 to 57	96 to 101	TURBO	High	70

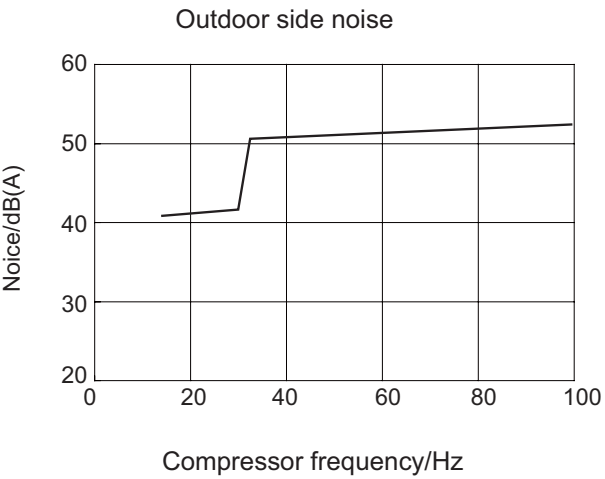
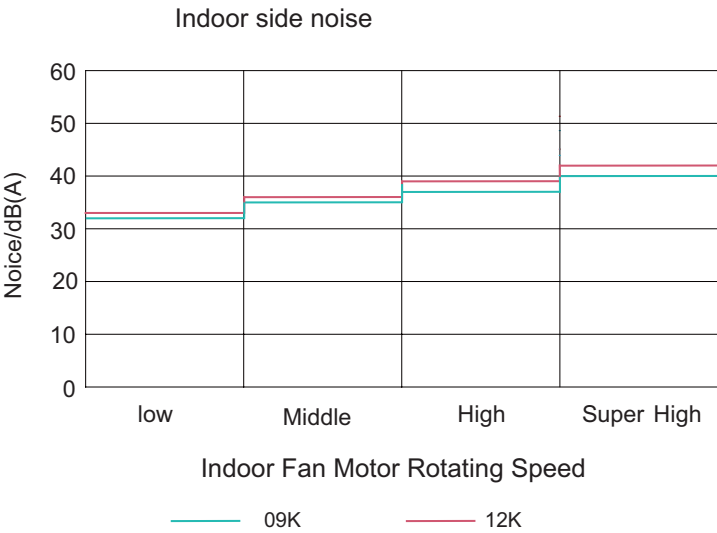
Heating

Rated heating condition(°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor		P (MPa)	T1 (°F)	T2 (°F)			
70/60	47/43	09K	2.4 to 3.2	100 to 107	36 to 41	TURBO	High	53
		12K		108 to 115	36 to 41	TURBO	High	75

Instruction:

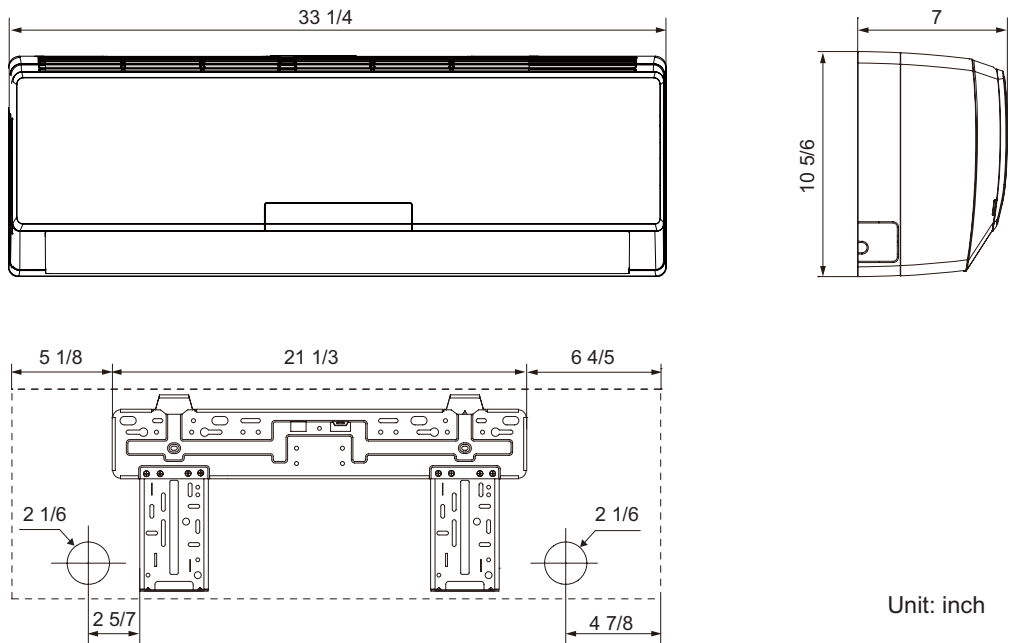
- T1: Inlet and outlet pipe temperature of evaporator
- T2: Inlet and outlet pipe temperature of condenser
- P: Pressure at the side of big valve
- Connection pipe length: 24.6ft.

2.5 Noise Curve

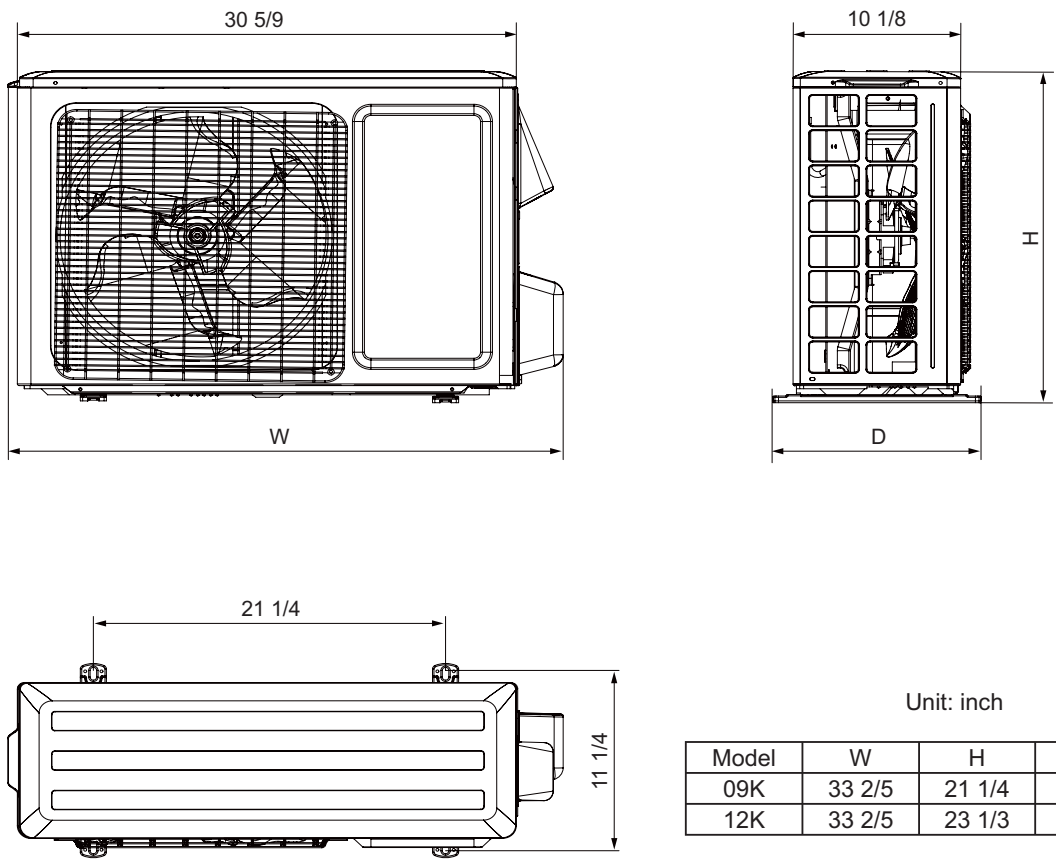


3. Outline Dimension Diagram

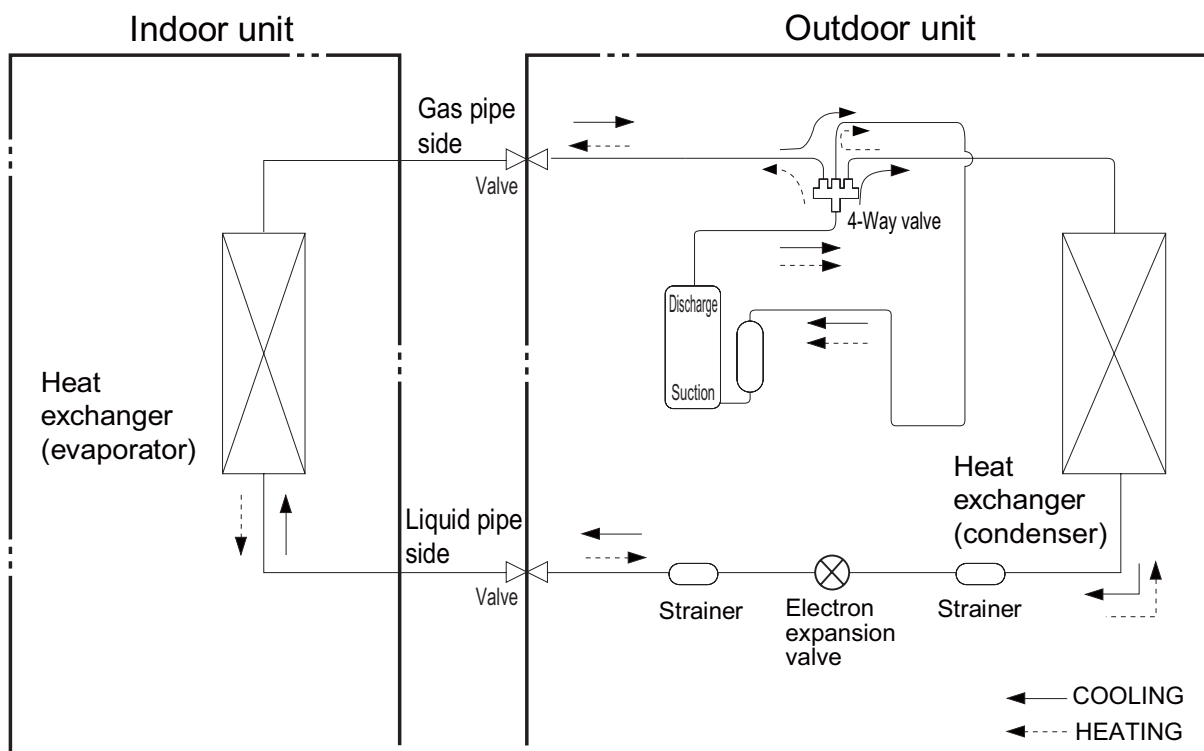
3.1 Indoor Unit



3.2 Outdoor Unit



Model	W	H	D
09K	33 2/5	21 1/4	12 3/5
12K	33 2/5	23 1/3	12 3/5



Refrigerant pipe diameter
Liquid : 1/4" Gas : 3/8"

5. Electrical Part

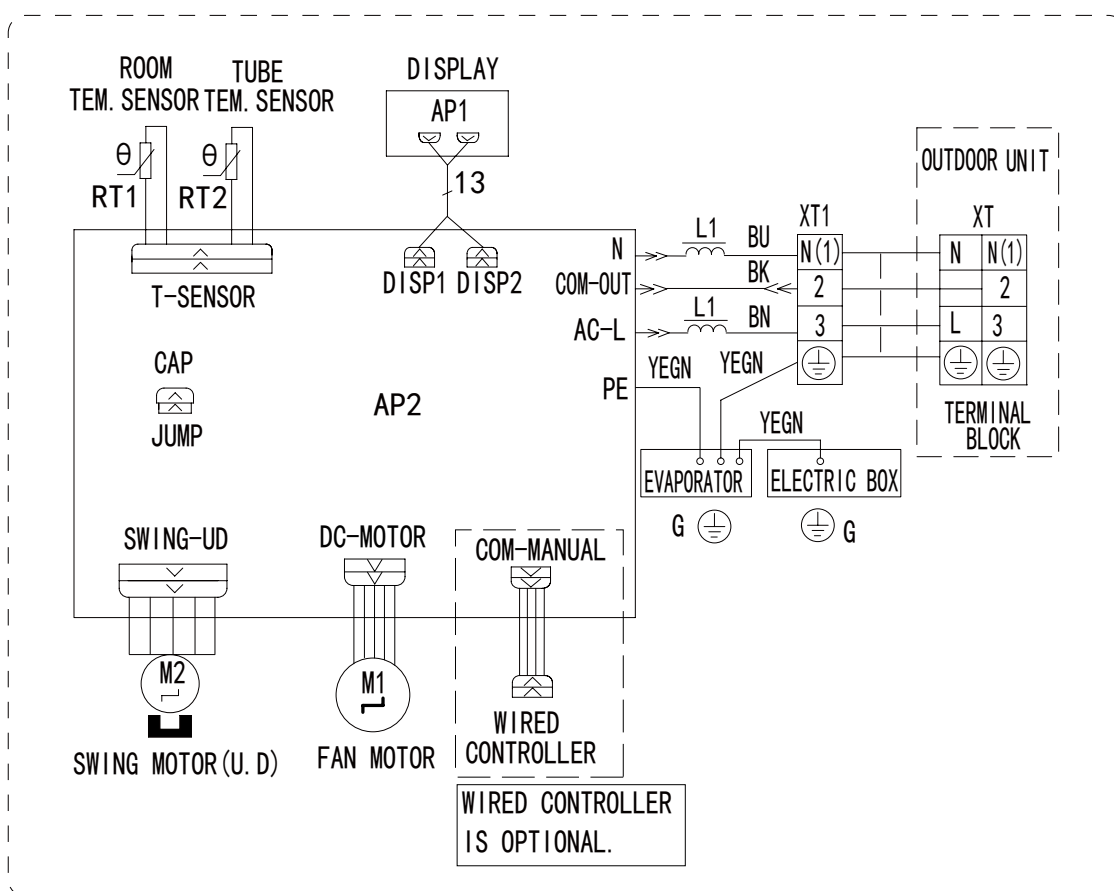
5.1 Wiring Diagram

● Instruction

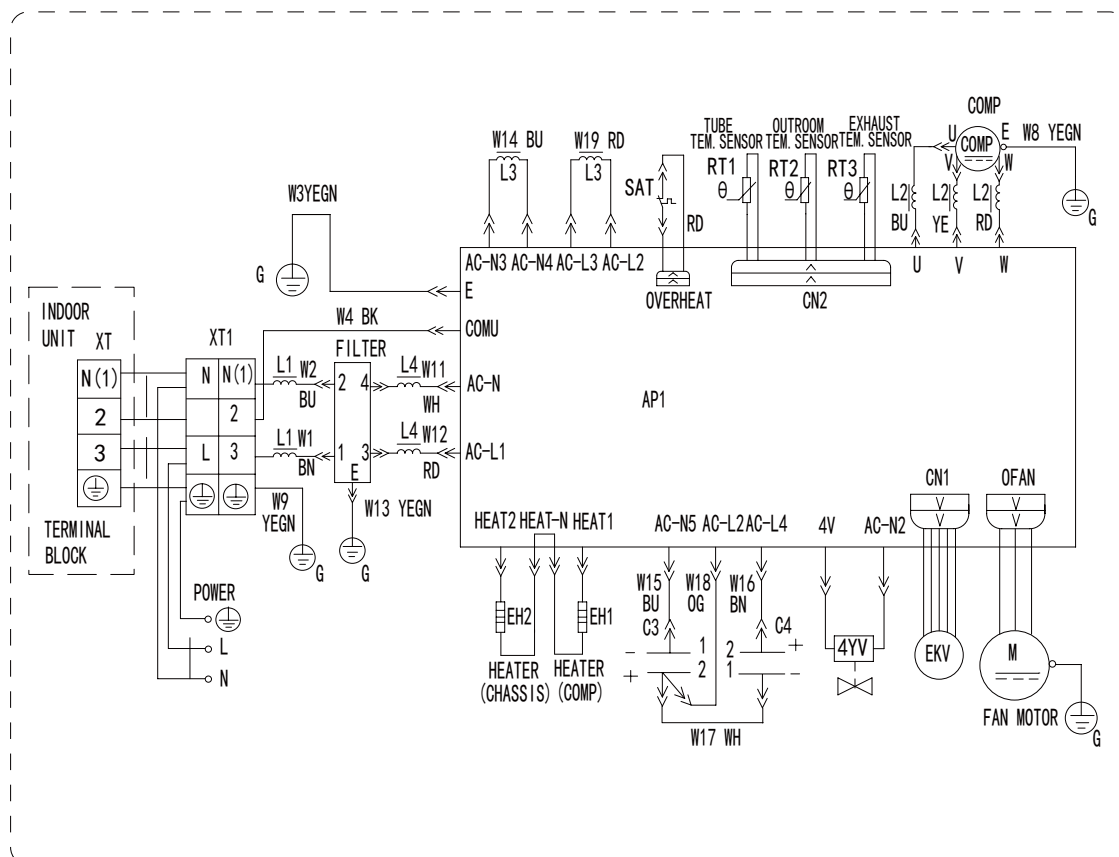
Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue		Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

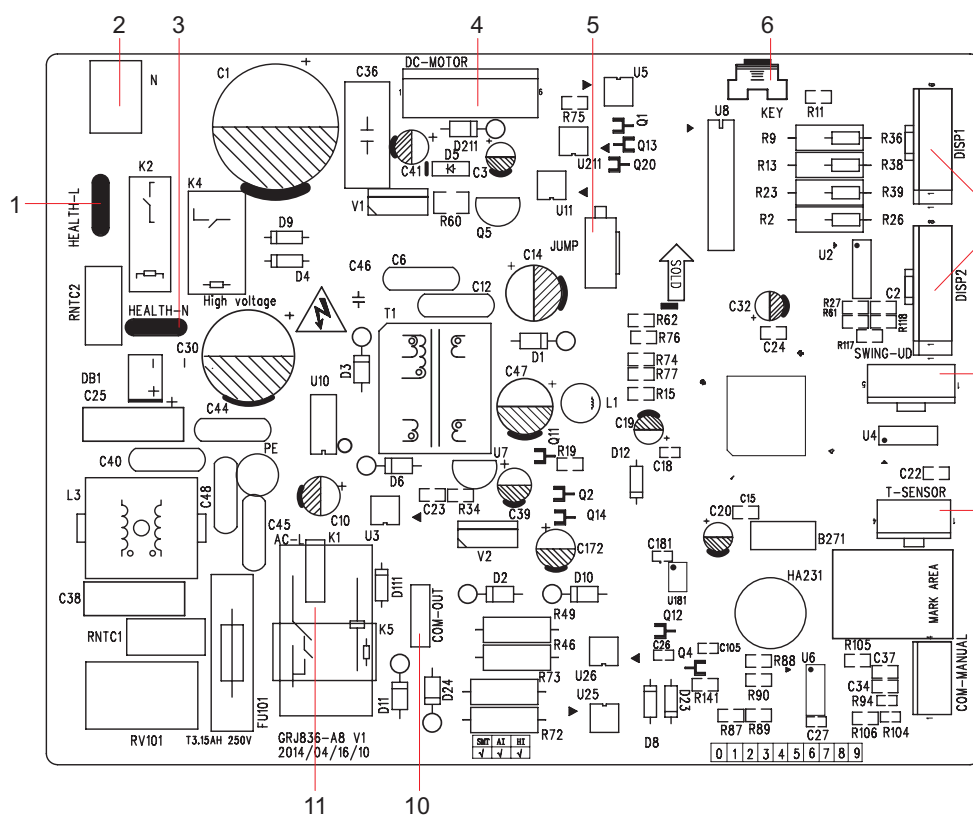
● Indoor Unit



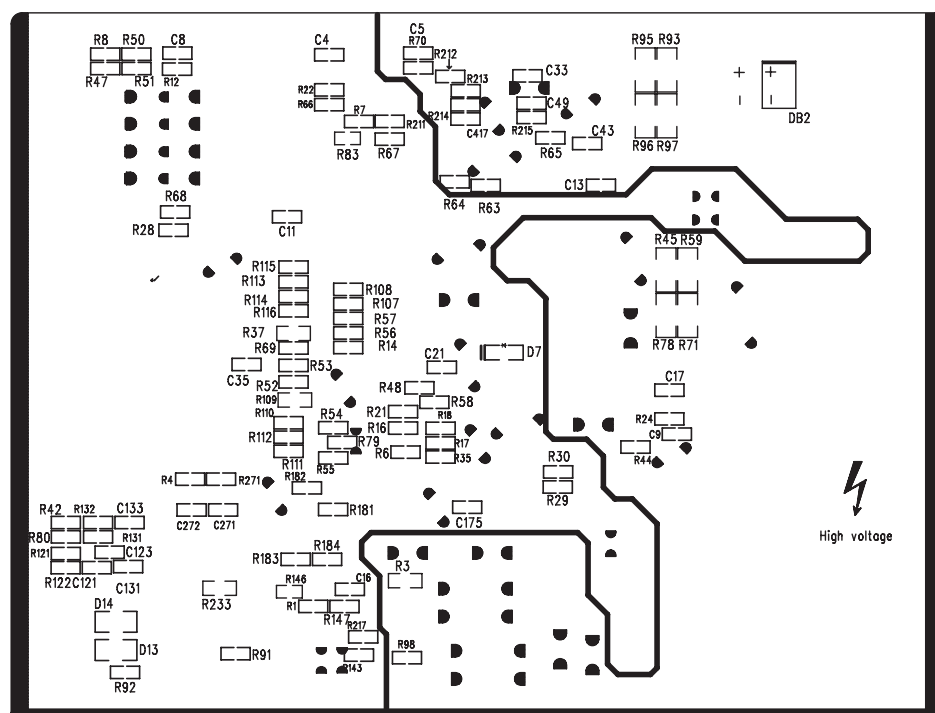
- **Outdoor Unit**



These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

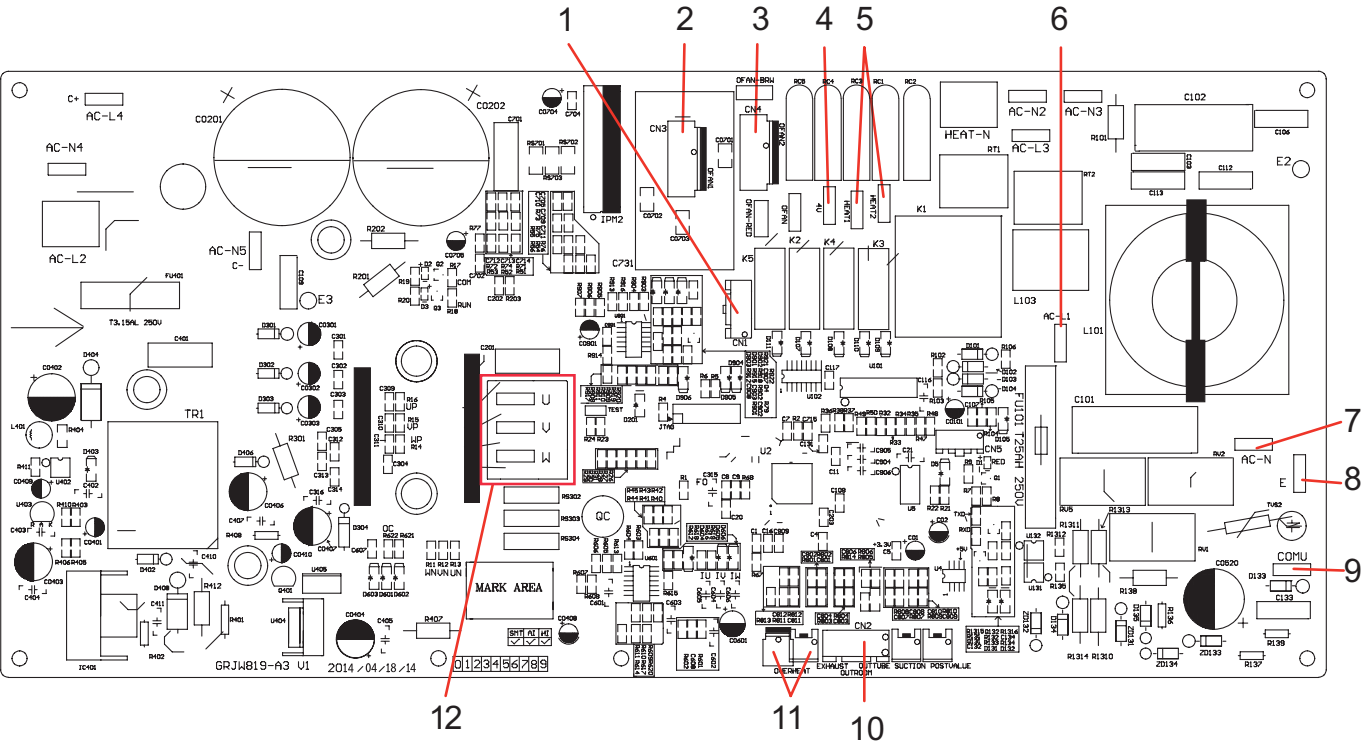


1	Health live wire interface
2	Neutral wire interface
3	Health neutral wire interface
4	DC-MOTER interface
5	Jump cap
6	Auto button
7	Display interface
8	Up&down swing interface
9	Tube&Indoor ambient temp.sensor interface
10	Neutral and live wire communication interface
11	Live wire interface



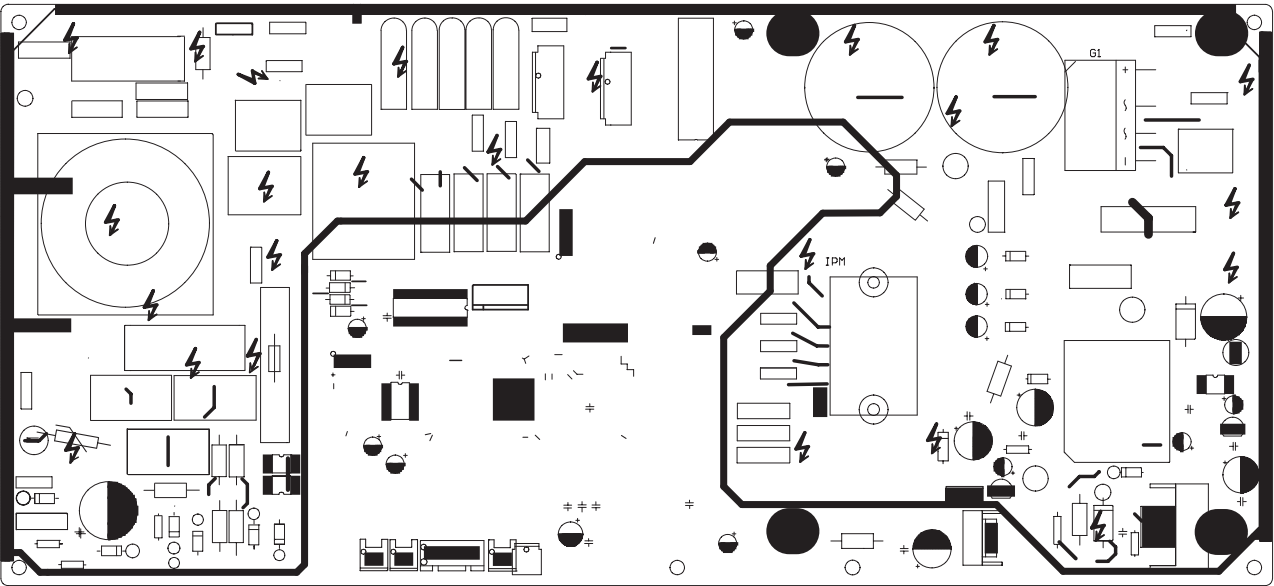
Outdoor Unit

• Top view



1	EEV port	4	four-way valve port	7	power supply neutral wire port	10	temp. sensor port
2	DC fan port	5	compressor electric heating band port	8	earth wire port	11	overload port
3	AC fan port	6	power supply live wire port	9	communication cable interface	12	compressor output port

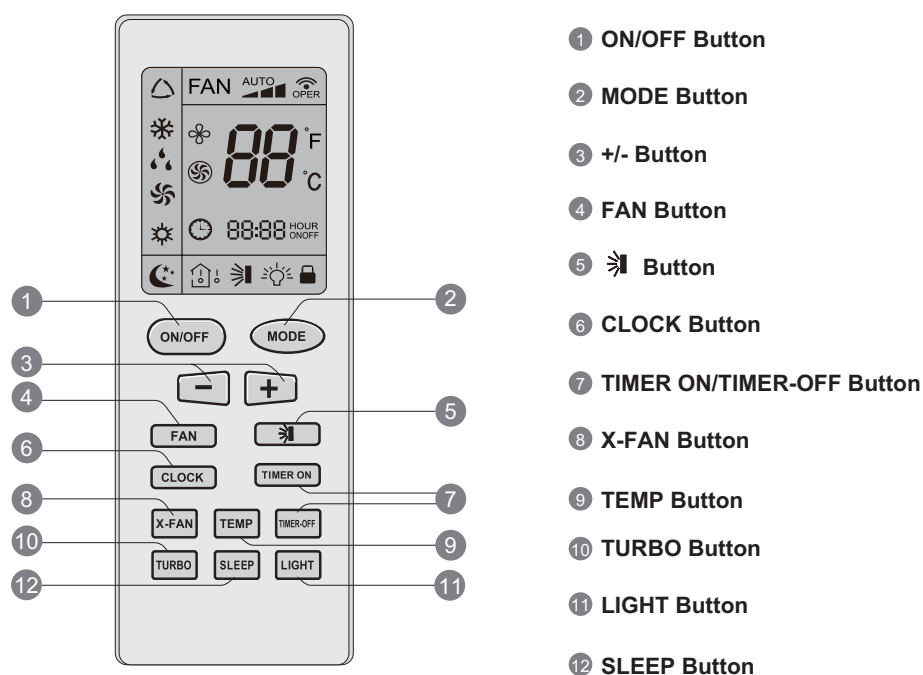
• Bottom view



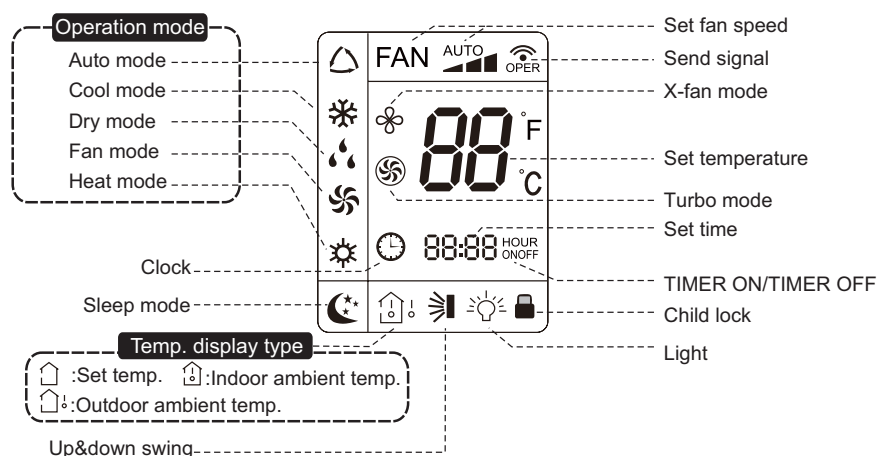
6. Function and Control

6.1 Remote Controller Introduction

Buttons on Remote Controller



Introduction for Icons on Display Screen



Introduction for Buttons on Remote Controller

Note:After putting through the power, the air conditioner will give out a sound. Operation indicator " " is ON (red indicator). After that, you can operate the air conditioner by using remote controller.

1. ON/OFF Button

Press this button can turn on or turn off the air conditioner. After turning on the air conditioner, operation indicator " " on indoor unit's display is ON (green indicator. The colour is different for different models), and indoor unit will give out a sound.

2. MODE Button

Press this button to select your required operation mode.



(Only for models with heating function.)

- When selecting auto mode, Air conditioner will start auto operation according to indoor ambient temperature. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press "↺" button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator "❄" on indoor unit is ON. Press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "↺" button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator "💧" on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press "↺" button to adjust fan blowing angle.
- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. All indicators are OFF. Operation indicator is ON. Press "FAN" button to adjust fan speed. Press "↺" button to adjust fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator "🔥" on indoor unit is ON. Press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "↺" button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

Note:

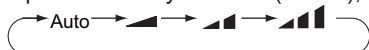
- For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Set temperature range from remote controller: 16~30℃ ; Fan speed: auto, low speed, medium speed, high speed.

3. "+" or "-" Button

- Press "+" or "-" button once increase or decrease set temperature 1℃. Holding "+" or "-" button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted under auto mode)
- When setting TIMER ON, TIMER OFF or CLOCK, press "+" or "-" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons)

4. FAN Button

Pressing this button can set fan speed circularly as: auto (AUTO), low (), medium (), high ().

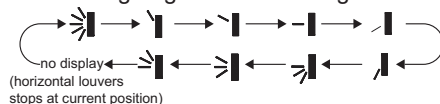


Note:

- Under AUTO speed, the IDU fan motor will adjust the fan speed (high, medium or low speed) according to ambient temperature.
- Fan speed under dry mode is low speed.

5. ↺ Button

Pressing this button can select up&down swing angle. Fan blow angle can be selected circularly as below:



- When selecting "↺", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.
- When selecting "↗", "↘", "↗", "↘", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting "↗", "↘", "↗", air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold "↺" button above 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

"↗", "↘", "↗" may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.

6. CLOCK Button

Press this button to set clock time. "🕒" icon on remote controller will blink. Press "+" or "-" button within 5s to set clock time. Each pressing of "+" or "-" button, clock time will increase or decrease 1 minute. Hold "+" or "-" button, 2s later, time will change quickly. Release this button when reaching your required time. Press "CLOCK" button to confirm the time. "🕒" icon stops blinking.

Note:

- Clock time adopts 24-hour mode.
- The interval between two operation can't exceeds 5s. Otherwise, remote controller will quit setting status. Operation for TIMER ON/TIMER OFF is the same.

7. TIMER-ON/TIMER-OFF Button

- TIMER ON button

TIMER ON button

"TIMER ON" button can set the time for timer on. After pressing this button, "🕒" icon disappears and the word "ON" on remote

controller blinks. Press "+" or "-" button to adjust TIMER ON setting. After each pressing "+" or "-" button, TIMER ON setting will increase or decrease 1min. Hold "+" or "-" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER ON" to confirm it. The word "ON" will stop blinking. "🕒" icon resumes displaying. Cancel TIMER ON: Under the condition that TIMER ON is started up, press "TIMER ON" button to cancel it.

- **TIMER OFF button**

"TIMER OFF" button can set the time for timer off. After pressing this button, "🕒" icon disappears and the word "OFF" on remote controller blinks. Press "+" or "-" button to adjust TIMER OFF setting. After each pressing "+" or "-" button, TIMER OFF setting will increase or decrease 1min. Hold "+" or "-" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER OFF" to confirm it. The word "OFF" will stop blinking. "🕒" icon resumes displaying. Cancel TIMER OFF. Under the condition that TIMER OFF is started up, press "TIMER OFF" button to cancel it.

Note:

- Under on and off status, you can set TIMER OFF or TIMER on simultaneously.
- Before setting TIMER ON or TIMER OFF, please adjust the clock time.
- After starting up TIMER ON or TIMER OFF, set the constant circulating valid. After that, air conditioner will be turned on or turned off according to setting time. ON/OFF button has no effect on setting. If you don't need this function, please use remote controller to cancel it.

8. X-FAN Button

Press this button under cool and dry mode to start up x-fan function, and "🌀" icon on remote controller will be displayed. Press this button again to cancel x-fan function, and "🌀" icon will disappear.

Note:

- When x-fan function is on, if the air conditioner is turned off, indoor fan will still operate at low speed for a while to blow the residual water inside the air duct.
- During x-fan operation, press X-FAN button to turn off x-fan function. Indoor fan will stop operation immediately.

9. TEMP Button

By pressing this button, you can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



When selecting "🏠" or no display with remote controller, temperature indicator on indoor unit displays set temperature;

When selecting "🏠🌡️" with remote controller, temperature indicator on indoor unit displays indoor ambient temperature;

When selecting "🏠🌡️☁️" with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives "🏠🌡️☁️" signal, while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit. There is no display in the remote controller.
- Only for the models whose indoor unit has dual-8 display

10. TURBO Button

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. "🌀" icon is displayed on remote controller. Press this button again to exit turbo function and "🌀" icon will disappear.

11. SLEEP Button

Under COOL, HEAT mode, press this button to start up sleep function. "🌙" icon is displayed on remote controller. Press this button again to cancel sleep function and "🌙" icon will disappear.

12. LIGHT Button

Press this button to turn off display light on indoor unit. "💡" icon on remote controller disappears. Press this button again to turn on display light. "💡" icon is displayed.

Function Introduction for Combination Buttons

Child lock function:

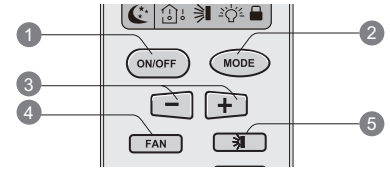
Press "+" and "-" simultaneously to turn on or turn off child lock function. When child lock function is on, "🔒" icon is displayed on remote controller. If you operate the remote controller, it won't send signal.

Temperature display switchover function:

Under OFF status, press "-" and "MODE" buttons simultaneously to switch temperature display between °C and °F.

Operation Guide

1. After putting through the power, press "ON/OFF" button on remote controller to turn on the air conditioner.
2. Press "MODE" button to select your required mode: AUTO, COOL, DRY, FAN, HEAT.
3. Press "+" or "-" button to set your required temperature. (Temperature can't be adjusted under auto mode).
4. Press "FAN" button to set your required fan speed: auto, low, medium and high speed.
5. Press " " button to select fan blowing angle.

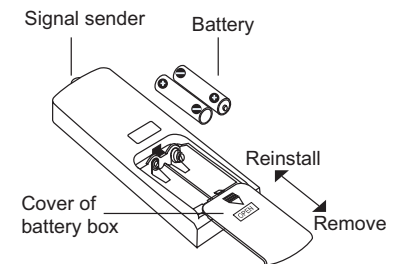


Replacement of Batteries in Remote Controller

1. Press the back side of remote controller marked with "OPEN" as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.

Note:

- During operation, point the remote control signal sender at the receiving window on indoor unit.
- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
- When you don't use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there's no display, please replace batteries.



6.2 Brief Description of Modes and Functions

Conversion formula for Fahrenheit degree and Celsius degree: $T_f = T_c \times 1.8 + 32$

1. Temperature Parameters

- ◆ Indoor preset temperature (T_{preset})
- ◆ Indoor ambient temperature ($T_{\text{amb.}}$)

2. Basic Functions

Once energized, in no case should the compressor be restarted within less than 3 minutes. In the situation that memory function is available, for the first energization, if the compressor is at stop before de-energization, the compressor will be started without a 3-minute lag; if the compressor is in operation before de-energization, the compressor will be started with a 3-minute lag; and once started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature.

(1) Cooling Mode

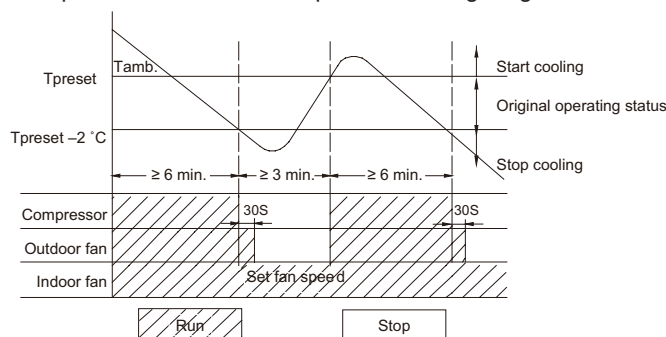
① The condition and process of cooling

If $T_{\text{amb.}} \geq T_{\text{preset}}$ cooling mode will act, the compressor and outdoor fan will run, and the indoor fan will run at the set speed.

If $T_{\text{amb.}} \leq T_{\text{preset}} - 2^\circ\text{C}$, the compressor will stop, the outdoor fan will delay 30 seconds to stop, and the indoor fan will run at the set speed.

If $T_{\text{preset}} - 2^\circ\text{C} < T_{\text{amb.}} < T_{\text{preset}}$, the unit will keep running in the previous mode.

In this mode, the reversal valve will not be powered on and the temperature setting range is $16 \sim 30^\circ\text{C}$.



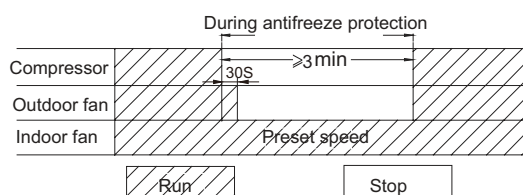
② Protection function

◆ Overcurrent protection

If total current is high, the compressor will run in limited frequency. If total current is too high, the compressor will stop, the outdoor fan will delay 30 seconds to stop, indoor unit will display E5 and outdoor yellow light will blink 5 times.

◆ Antifreezing protection

When the antifreezing protection is detected, the compressor will stop, the outdoor fan will stop after 30 seconds, and the indoor fan and swing motor will keep running in the original mode. When antifreezing protection is eliminated and the compressor has stopped for 3 minutes, the compressor will resume running in the original mode.



(2) Dehumidifying Mode

① Working conditions and process of dehumidifying

If $T_{\text{amb.}} > T_{\text{preset}}$, the unit will enter cooling and dehumidifying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If $T_{\text{preset}} - 2^\circ\text{C} \leq T_{\text{amb.}} \leq T_{\text{preset}}$, the compressor remains at its original operation state.

If $T_{\text{amb.}} < T_{\text{preset}} - 2^\circ\text{C}$, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will operate at low speed.

② Protection function

Protection is the same as that under the cooling mode.

(3) Heating Mode

① The condition and process of heating

If $T_{\text{amb.}} \leq T_{\text{preset}} + 2^\circ\text{C}$, heating mode will act, the compressor, outdoor fan and reversal valve will run, the indoor fan will delay 3min to stop at the latest.

If $T_{\text{preset}} + 2^\circ\text{C} < T_{\text{amb.}} < T_{\text{preset}} + 5^\circ\text{C}$, the unit will keep running in the original mode.

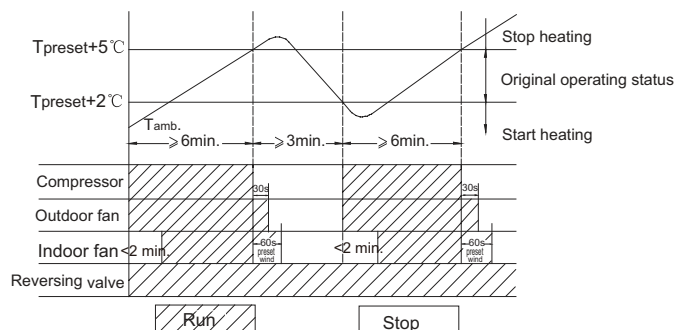
If $T_{\text{amb.}} \geq T_{\text{preset}} + 5^\circ\text{C}$, the compressor will stop, the outdoor fan will delay 30s to stop and indoor fan will blow 60s at low speed, the fan speed cannot be shifted within blow residual heat.

◆ In this mode, the temperature setting range is $16 \sim 30^\circ\text{C}$.

◆ The air conditioner will adjust the running frequency of the compressor automatically according to the change of ambient temperature.

◆ When the unit is turned off in heating mode, or switched to other mode from heating mode, the four-way valve will be powered off after the compressor stops.

- ◆ When compressor is running (not including each malfunction and protection):



② Condition and process of defrost

When duration of successive heating operation is more than 45 minutes, or accumulated heating time more than 90 minutes, and one of the following conditions is reached, the unit will enter the defrost mode after 3 minutes.

- (1). $T_{\text{outdoor ambient}} > 5^{\circ}\text{C}$, $T_{\text{outdoor tube}} \leq -2^{\circ}\text{C}$;
- (2). $-2^{\circ}\text{C} \leq T_{\text{outdoor ambient}} < 5^{\circ}\text{C}$, $T_{\text{outdoor tube}} - T_{\text{compensatory}} \leq -6^{\circ}\text{C}$;
- (3). $-5^{\circ}\text{C} \leq T_{\text{outdoor ambient}} < -2^{\circ}\text{C}$, $T_{\text{outdoor tube}} - T_{\text{compensatory}} \leq -8^{\circ}\text{C}$;
- (4). $-10^{\circ}\text{C} \leq T_{\text{outdoor ambient}} < -5^{\circ}\text{C}$, $T_{\text{outdoor tube}} - T_{\text{compensatory}} \leq (T_{\text{outdoor ambient}} - 5^{\circ}\text{C})$
- (5). $T_{\text{outdoor ambient}} < -10^{\circ}\text{C}$, $T_{\text{outdoor tube}} - T_{\text{compensatory}} \leq (T_{\text{outdoor ambient}} - 5^{\circ}\text{C})$

(after energizing, $T_{\text{compensatory}} = 0^{\circ}\text{C}$ during the first defrosting; if it is not the first defrosting, $T_{\text{compensatory}}$ is confirmed by $T_{\text{outdoor tube}}$ of quitting last defrosting: a. when $T_{\text{outdoor tube}} > 2^{\circ}\text{C}$, $T_{\text{compensatory}} = 0^{\circ}\text{C}$; b. when $T_{\text{outdoor tube}} \leq 2^{\circ}\text{C}$, $T_{\text{compensatory}} = 3^{\circ}\text{C}$)
At that time, the indoor fan stops and the compressor stops, and after 30 seconds the outdoor fan will stop, and then after 30 seconds, the four-way valve will stop. After 30 seconds, the compressor is initiated for raising the frequency to defrost frequency. When the compressor has operated under defrost mode for 7.5 minutes, or $T_{\text{outdoor ambient}} \geq 10^{\circ}\text{C}$, the compressor will be converted to 46Hz operation. After 30 seconds, the compressor will stop. And after another 30 seconds, the four-way valve will be opened, and after 60 seconds, the compressor and the outdoor fan will be started, the indoor fan will run under preset cold air prevention conditions, Defrost frequency is 80Hz.

③ Protection

◆ Cold air prevention

The unit is started under heating mode (the compressor is ON):

- ① In the case of $T_{\text{indoor amb.}} < 24^{\circ}\text{C}$: if $T_{\text{tube}} \leq 40^{\circ}\text{C}$ and the indoor fan is at stop state, the indoor fan will begin to run at low speed with a time lag of 2 minutes. Within 2 minutes, if $T_{\text{tube}} > 40^{\circ}\text{C}$, the indoor fan also will run at low speed; and after 1-minute operation at low speed, the indoor fan will be converted to operation at preset speed. Within 1-minute low speed operation or 2-minute nonoperation, if $T_{\text{tube}} > 42^{\circ}\text{C}$, the fan will run at present speed.

- ② In the case of $T_{\text{indoor amb.}} \geq 24^{\circ}\text{C}$: if $T_{\text{tube}} \leq 42^{\circ}\text{C}$, the indoor fan will run at low speed, and after one minute, the indoor fan will be converted to preset speed. Within one-minute low speed operation, if $T_{\text{tube}} > 42^{\circ}\text{C}$, the indoor fan will be converted to preset speed.

Note: $T_{\text{indoor amb.}}$ indicated in ① and ② refers to, under initially heating mode, the indoor ambient temperature before the command to start the compressor is performed according to the program, or after the unit is withdrawn from defrost, the indoor ambient temperature before the defrost symbol is cleared.

◆ Total current up and frequency down protection

If the total current $I_{\text{total}} \leq W$, frequency rise will be allowed; if $I_{\text{total}} \geq X$, frequency rise will not be allowed; if $I_{\text{total}} \geq Y$, the compressor will run at reduced frequency; and if $I_{\text{total}} \geq Z$, the compressor will stop and the outdoor fan will stop with a time lag of 30s.

09k: $W=12\text{A}$; $X=14\text{A}$; $Y=16\text{A}$; $Z=18\text{A}$

12k: $W=13\text{A}$; $X=15\text{A}$; $Y=17\text{A}$; $Z=19\text{A}$

(5) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, the four-way valve and the electric heater will stop.

Under the mode, temperature can be set within a range of $16 \sim 30^{\circ}\text{C}$.

(6) AUTO Mode

① Operation way of AUTO mode

a. When $T_{\text{ambient}} \geq 26^{\circ}\text{C}$, it will run in cooling mode. The implied set temperature is 25°C (note: the set temperature sending to outdoor unit is 25°C).

b. For heating and cooling unit, when $T_{\text{ambient}} \leq 22^{\circ}\text{C}$, it will run in heating mode. The implied set temperature is 20°C ; for cooling only unit, when $T_{\text{ambient}} \leq 22^{\circ}\text{C}$, it will run in fan mode and the displayed set temperature is 25°C .

c. For heating and cooling unit, when $22^{\circ}\text{C} < T_{\text{indoor ambient}} < 26^{\circ}\text{C}$ (for cooling only unit, $22^{\circ}\text{C} < T_{\text{indoor ambient}} < 26^{\circ}\text{C}$), it will keep the original running mode. If the unit is energized for the first time, it will run in fan mode.

② Protection

- In cooling operation, protection is the same as that under the cooling mode;
- In heating operation, protection is the same as that under the heating mode;
- When ambient temperature changes, operation mode will be converted preferentially. Once started, the compressor will remain unchanged for at least 6 minutes.

(7) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Modes

① Overload protection

T_{tube} : measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat exchanger under heating mode.

1) Cooling overload

- If $T_{\text{tube}} \leq 52^{\circ}\text{C}$, the unit will return to its original operation state.
- If $T_{\text{tube}} \geq 55^{\circ}\text{C}$, frequency rise is not allowed.
- If $T_{\text{tube}} \geq 58^{\circ}\text{C}$, the compressor will run at reduced frequency.
- If $T_{\text{tube}} \geq 62^{\circ}\text{C}$, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

- If $T_{\text{tube}} \leq 50^{\circ}\text{C}$, the unit will return to its original operation state.
- If $T_{\text{tube}} \geq 53^{\circ}\text{C}$, frequency rise is not allowed.
- If $T_{\text{tube}} \geq 56^{\circ}\text{C}$, the compressor will run at reduced frequency.
- If $T_{\text{tube}} \geq 60^{\circ}\text{C}$, the compressor will stop and the indoor fan will blow residue heat and then stop.

② Exhaust temperature protection of compressor

If exhaust temperature $\geq 98^{\circ}\text{C}$, frequency is not allowed to rise.

If exhaust temperature $\geq 103^{\circ}\text{C}$, the compressor will run at reduced frequency.

If exhaust temperature $\geq 110^{\circ}\text{C}$, the compressor will stop.

If exhaust temperature $\leq 90^{\circ}\text{C}$ and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

③ Communication fault

If the unit fails to receive correct signals for durative 3 minutes, communication fault can be justified and the whole system will stop.

④ Module protection

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, the compressor will resume its operation. If module protection occurs six times in succession, the compressor will not be started again.

⑤ Overload protection

If temperature sensed by the overload sensor is over 115, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. If temperature is below 95, the overload protection will be relieved.

⑥ DC bus voltage protection

If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

⑦ Faults of temperature sensors

Designation of sensors	Faults
Indoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 5 seconds
Indoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 5 seconds
Outdoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds, and no detection is performed within 10 minutes after defrost begins.
Exhaust	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.
Overload	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.

3. Other Controls

(1) ON/OFF

Press the remote button ON/OFF: the on-off state will be changed once each time you press the button.

(2) Mode Selection:

Press the remote button MODE, then select and show in the following ways: AUTO, COOL, DRY, FAN, HEAT, AUTO.

(3) Temperature Setting Option Button

Each time you press the remote button TEMP+ or TEMP-, the setting temperature will be up or down by 1°C . Regulating Range: $16\sim 30^{\circ}\text{C}$, the button is useless under the AUTO mode.

(4) Time Switch

You should start and stop the machine according to the setting time by remote control.

(5) SLEEP State Control

1. In cooling mode:

1.1 When the initial set temperature is 16-23°C, the temperature will rise 1°C by every hour after sleep function is set; the temperature will not change after rising 3°C; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

1.2 When the initial set temperature is 24-27°C, the temperature will rise 1°C by every hour after sleep function is set; the temperature will not change after rising 2°C; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

1.3 When the initial set temperature is 28-29°C, the temperature will rise 1°C by every hour after sleep function is set; the temperature will not change after rising 1°C; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

1.4 When the initial set temperature is 30°C, the unit will keep on running at this temperature; after running for 7 hours, the temperature will decrease 1°C and it will not change after that.

Relationship between set temperature and running time:

Initial Temp.	Running time(Hour)							
0(start)	1	2	3	4	5	6	7	8
16	17	18	19	19	19	19	18	18
17	18	19	20	20	20	20	19	19
18	19	20	21	21	21	21	20	20
19	20	21	22	22	22	22	21	21
20	21	22	23	23	23	23	22	22
21	22	23	24	24	24	24	23	23
22	23	24	25	25	25	25	24	24
23	24	25	26	26	26	26	25	25
24	25	26	26	26	26	26	25	25
25	26	27	27	27	27	27	26	26
26	27	28	28	28	28	28	27	27
27	28	29	29	29	29	29	28	28
28	29	29	29	29	29	29	28	28
29	30	30	30	30	30	30	29	29
30	30	30	30	30	30	30	29	29

2. In heating mode:

2.1 When the initial set temperature is 16°C, the unit will keep on running at this temperature;

2.2 When the initial set temperature is 17-20°C, the temperature will decrease 1°C by every hour after sleep function is set; the temperature will not change after decreasing 1°C;

2.3 When the initial set temperature is 21-27°C, the temperature will decrease 1°C by every hour after sleep function is set; the temperature will not change after decreasing 2 ;

2.4 When the initial set temperature is 28-30°C, the temperature will decrease 1°C by every hour after sleep function is set; the temperature will not change after decreasing 3°C;

Relationship between set temperature and running time:

Temp.(°C)	Running time(Hour)							
0(start)	1	2	3	4	5	6	7	8
16	16	16	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16
18	17	17	17	17	17	17	17	17
19	18	18	18	18	18	18	18	18
20	19	19	19	19	19	19	19	19
21	20	19	19	19	19	19	19	19
22	21	20	20	20	20	20	20	20
23	22	21	21	21	21	21	21	21
24	23	22	22	22	22	22	22	22
25	24	23	23	23	23	23	23	23
26	25	24	24	24	24	24	24	24
27	26	25	25	25	25	25	25	25
28	27	26	25	25	25	25	25	25
29	28	27	26	26	26	26	26	26
30	29	28	27	27	27	27	27	27

(6) Indoor Fan Control

Indoor fan could be set at ultra-high, high, medium, low speed by wireless remote controller and operated as that speed.

Auto fan speed could be set as well, indoor fan will operate under auto fan speed as following:

1. Under heating mode: auto speed under heating or auto heating mode:

- When $T_{amb.} \leq T_{preset} + 1^{\circ}\text{C}$, indoor fan will operate at high speed;
- When $T_{preset} + 1^{\circ}\text{C} < T_{amb.} < T_{preset} + 3^{\circ}\text{C}$, indoor fan will operate at medium speed;
- When $T_{amb.} \geq T_{preset} + 3^{\circ}\text{C}$, indoor fan will operate at low speed;

There should be at least 180s operation time during switchover of each speed.

2. Under cooling mode: auto speed under cooling or auto cooling mode:

- When $T_{amb.} \geq T_{preset} + 2^{\circ}\text{C}$, indoor fan will operate at high speed;
- When $T_{preset} < T_{amb.} < T_{preset} + 2^{\circ}\text{C}$, indoor fan will operate at medium speed;
- When $T_{amb.} \leq T_{preset}$, indoor fan will operate at low speed

There should be at least 210s operation time during switchover of each speed.

(7) Buzzer Control

The buzzer will send a "Di" sound when the air conditioner is powered up or received the information sent by the remote control or there is a button input, the single tube cooler doesn't receive the remote control ON signal under the mode of heating mode.

(8) Auto button

If the controller is on, it will stop by pressing the button, and if the controller is off, it will be automatic running state by pressing the button, swing on and light on, and the main unit will run based on the remote control if there is remote control order.

(9) Up-and-Down Swinging Control

When power on, the up-and-down motor will firstly move the air deflector to 0 counter-clockwise, close the air outlet.

After starting the machine, if you don't set the swinging function on, heating mode and auto-heating mode, the up-and-down air deflector will move to D clockwise; under other modes, the up-and-down air deflector will move to L1. If you set the swinging function when you start the machine, then the wind blade will swing between L and D. The air deflector has 7 swinging states: Location L, Location A, Location B, Location C, Location D, Location L to Location D, stop at any location between L-D (the included angle between L~D is the same).

The air deflector will be closed at 0 Location, and the swinging is effectual only on condition that setting the swinging order and the inner fan is running. The indoor fan and compressor may get the power when air deflector is on the default location.

The air deflector will be closed at 0 Location, and the swinging is effectual only on condition that setting the swinging order and the inner fan is running. The indoor fan and compressor may get the power when air deflector is on the default location.

(10) Display

① Operation pattern and mode pattern display

All the display patterns will display for a time when the power on, the operation indication pattern will display in red under standby status. When the machine is start by remote control, the indication pattern will light and display the current operation mode (the mode light includes: Cooling, heating and dehumidify). If you close the light key, all the display patterns will close.

② Double-8 display

According to the different setting of remote control, the nixie light may display the current temperature (the temperature scope is from 16°C to 30°C) and indoor ambient temperature. The set temperature displayed in auto cooling and fan mode is 25°C and the set temperature displayed in auto heating mode is 20°C . Under heating mode, nixie tube displays H1 or heating indicator is off 0.5s and blinks 10s in defrosting. (If you set the fahrenheit temperature display, the nixie light will display according to fahrenheit temperature) (11) Protection function and failure display

E2: Freeze-proofing protection E4: Exhausting protection E5: Overcurrent protection E6: Communication failure

F1: Indoor ambient sensor start and short circuit (continuously measured failure in 5s)

F2: Indoor evaporator sensor start and short circuit (continuously measured failure in 5s)

F3: Outdoor ambient sensor start and short circuit (continuously measured failure in 30s)

F4: Outdoor condenser sensor start and short circuit (continuously measured failure in 30s, and don't measure within 10 minutes after defrosted)

F5: Outdoor exhausting sensor start and short circuit (continuously measured failure in 30s after the compressor operated 3 minutes)

H3: Overload protection of compressor H5: Module protection PH: High-voltage protection PL: Low-voltage protection

P1: Nominal cooling and heating test P2: Maximum cooling and heating test

P3: Medium cooling and heating test P0: Minimum cooling and heating test

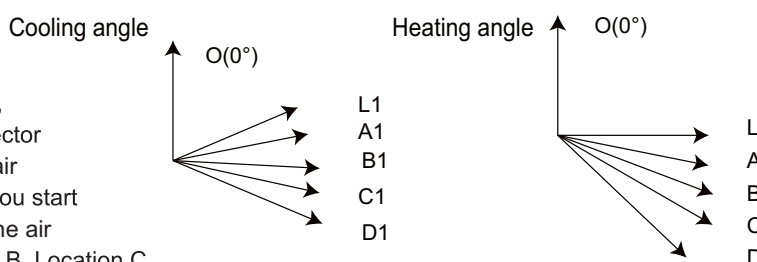
(12) Drying Function

You may start or stop the drying function under the modes of cooling and dehumidify at the starting status (The modes of automatism, heating and air supply do not have drying function). When you start the drying function, after stop the machine by pressing the switch button, you should keep running the inner fans for 2 minutes under low air damper (The swing will operate as the D1 status within 2 minutes, and other load is stopped), then stop the entire machine; When you stop the drying function, press the switch button will stop the machine directly. When you start the drying function, operating the drying button will stop the inner fans and close the guide louver.

(13) Memory Function

When interrupting the power supply memory content: mode, swing function, light, set temperature and wind speed.

After interrupted the power supply, the machine will start when recovering the power according to the memory content automatically.



Part II : Installation and Maintenance

7. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

- The installation or maintenance must accord with the instructions.
- Comply with all national electrical codes and local electrical codes.
- Pay attention to the warnings and cautions in this manual.
- All installation and maintenance shall be performed by distributor or qualified person.
- All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.
- Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.



Warnings

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.
3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
4. Make sure each wiring terminal is connected firmly during installation and maintenance.
5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.
6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires can't be pressed by hard objects.
9. If power cord or connection wire is broken, it must be replaced by a qualified person.

10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.

11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 0.12inch.

12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.

13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.

14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.

15. If the unit is to be installed in a humid place, the circuit breaker must be installed.

Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 40.09lbs.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Wear safety belt if the height of working is above 6.56ft.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.
3. Make sure no refrigerant gas is leaking out when installation is completed.
4. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.
5. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

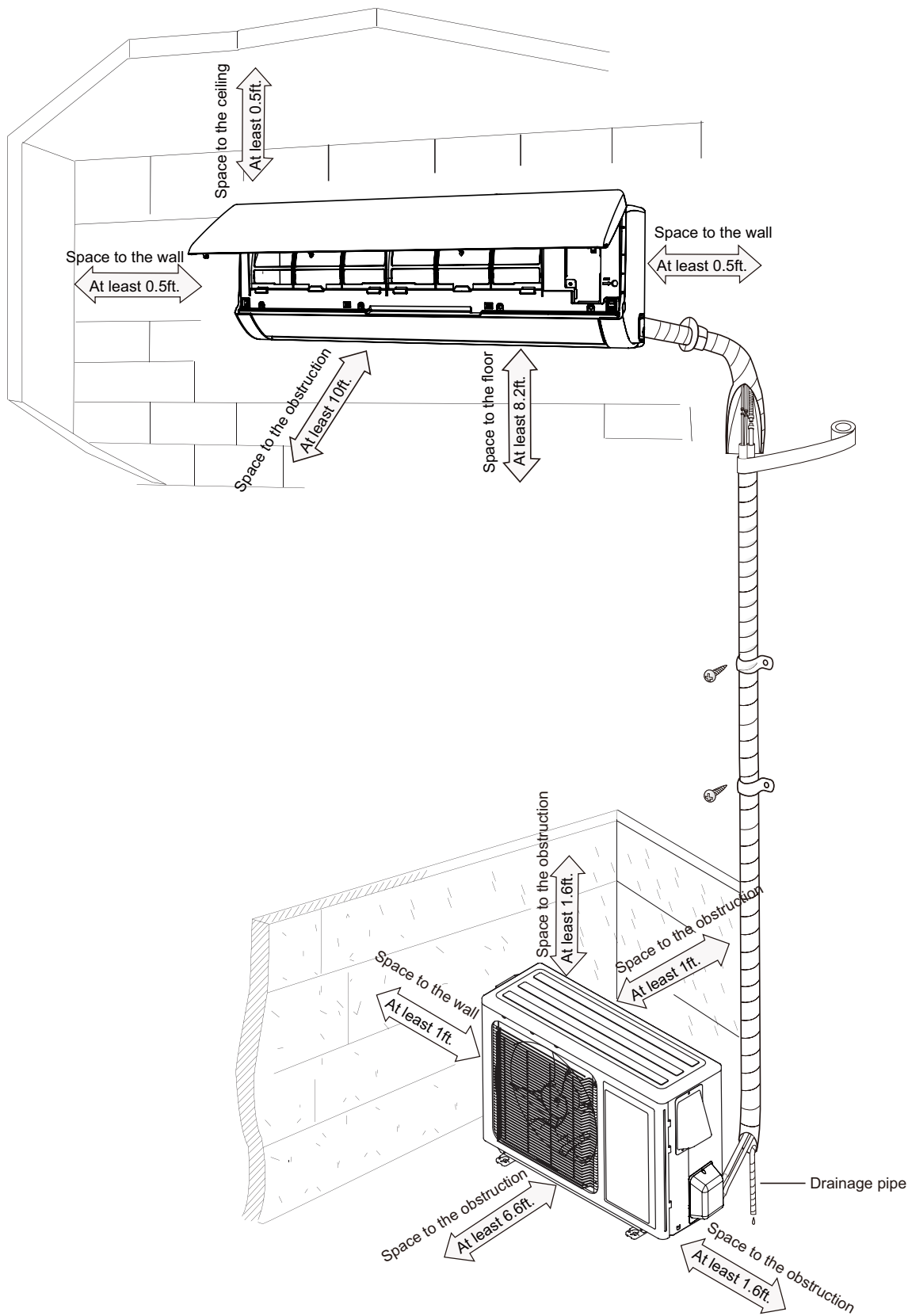
Improper installation may lead to fire hazard, explosion, electric shock or injury.

Main Tools for Installation and Maintenance

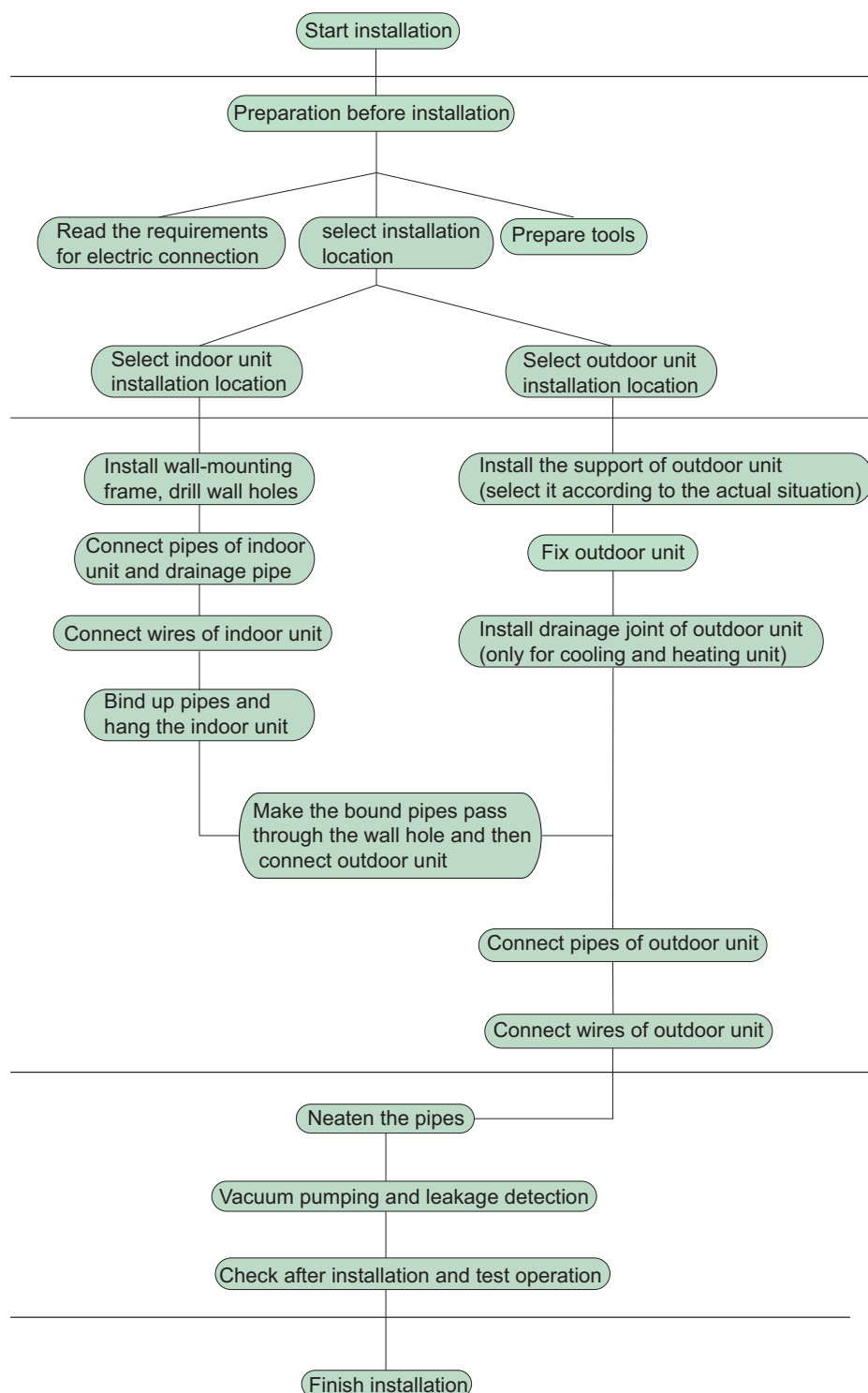
<p>1. Level meter, measuring tape</p> 	<p>2. Screw driver</p> 	<p>3. Impact drill, drill head, electric drill</p> 
<p>4. Electroprobe</p> 	<p>5. Universal meter</p> 	<p>6. Torque wrench, open-end wrench, inner hexagon spanner</p> 
<p>7. Electronic leakage detector</p> 	<p>8. Vacuum pump</p> 	<p>9. Pressure meter</p> 
<p>10. Pipe pliers, pipe cutter</p> 	<p>11. Pipe expander, pipe bender</p> 	<p>12. Soldering appliance, refrigerant container</p> 

8. Installation

8.1 Installation Dimension Diagram



Installation procedures



Note: this flow is only for reference; please find the more detailed installation steps in this section.

8.2 Installation Parts-checking

No.	Name	No.	Name
1	Indoor unit	8	Sealing gum
2	Outdoor unit	9	Wrapping tape
3	Connection pipe	10	Support of outdoor unit
4	Drainage pipe	11	Fixing screw
5	Wall-mounting frame	12	Drainage plug(cooling and heating unit)
6	Connecting cable(power cord)	13	Owner's manual, remote controller
7	Wall pipe		

⚠ Note:

1. Please contact the local agent for installation.
2. Don't use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement:

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

- (1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
- (2) The place with high-frequency devices (such as welding machine, medical equipment).
- (3) The place near coast area.
- (4) The place with oil or fumes in the air.
- (5) The place with sulfureted gas.
- (6) Other places with special circumstances.

2. Indoor Unit:

- (1) There should be no obstruction near air inlet and air outlet.
- (2) Select a location where the condensation water can be dispersed easily and won't affect other people.
- (3) Select a location which is convenient to connect the outdoor unit and near the power socket.
- (4) Select a location which is out of reach for children.
- (5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.
- (6) The appliance must be installed 8.2ft above floor.
- (7) Don't install the indoor unit right above the electric appliance.
- (8) The appliance shall not be installed in the laundry.

3. Outdoor Unit:

- (1) Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
- (2) The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
- (3) The location should be able to withstand the weight of outdoor unit.
- (4) Make sure that the installation follows the requirement of installation dimension diagram.
- (5) Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add fence for safety purpose.

8.4 Electric Connection Requirement

1. Safety Precaution

- (1) Must follow the electric safety regulations when installing the unit.
- (2) According to the local safety regulations, use qualified power supply circuit and air switch.
- (3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
- (4) Properly connect the live wire, neutral wire and grounding wire of power socket.
- (5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- (6) Do not put through the power before finishing installation.
- (7) For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- (8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

2. Grounding Requirement:

- (1) The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- (2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
- (3) The grounding resistance should comply with national electric safety regulations.
- (4) The appliance must be positioned so that the plug is accessible.
- (5) An all-pole disconnection switch having a contact separation of at least 1/8 inch in all poles should be connected in fixed wiring.
- (6) Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

8.5 Installation of Indoor Unit

1. Choosing Installation location

Recommend the installation location to the client and then confirm it with the client.

2. Install Wall-mounting Frame

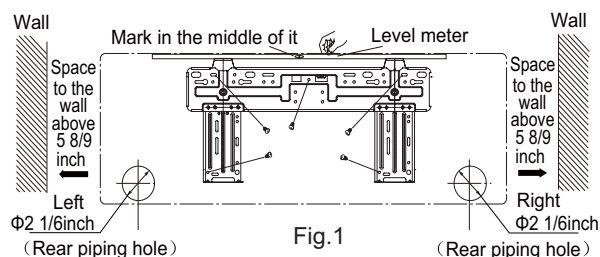
- (1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
- (2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles

in the holes.

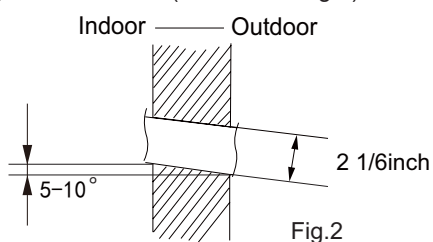
(3) Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

3. Install Wall-mounting Frame

(1) Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame.(As show in Fig.1)



(2) Open a piping hole with the diameter of 2 1/6 inch on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°. (As show in Fig.2)



⚠ Note:

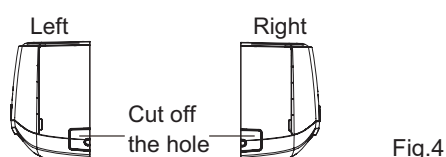
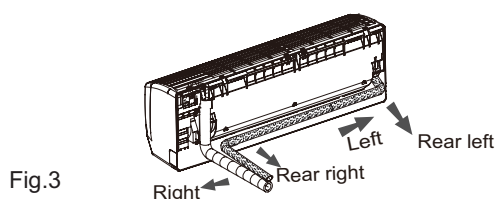
(1) Pay attention to dust prevention and take relevant safety measures when opening the hole.

(2) The plastic expansion particles are not provided and should be bought locally.

4. Outlet Pipe

(1) The pipe can be led out in the direction of right, rear right, left or rear left. (As show in Fig.3)

(2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case. (As show in Fig.4)



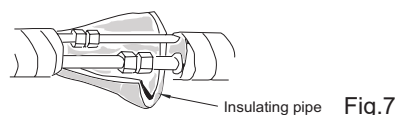
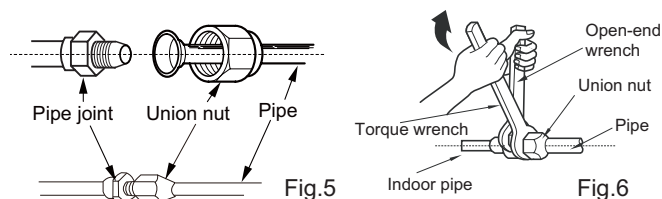
5. Connect the Pipe of Indoor Unit

(1) Aim the pipe joint at the corresponding bellmouth. (As show in Fig.5)

(2) Pretightening the union nut with hand.

(3) Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench. (As show in Fig.6)

(4) Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape. (As show in Fig.7)



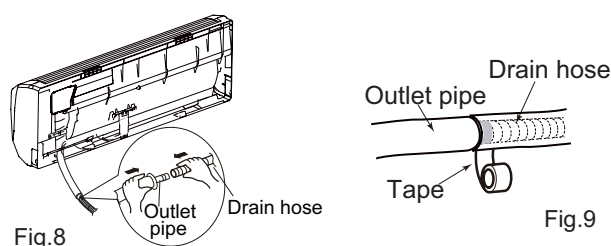
Refer to the following table for wrench moment of force:

Hex nut diameter(inch)	Tightening torque(ft·lbf)
Φ1/4	11.10~14.75
Φ3/8	22.82~29.50
Φ1/2	33.19~40.56
Φ5/8	44.24~47.94
Φ3/4	51.32~55.31

6. Install Drain Hose

(1) Connect the drain hose to the outlet pipe of indoor unit. (As show in Fig.8)

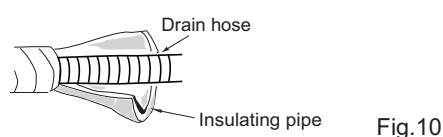
(2) Bind the joint with tape. (As show in Fig.9)



⚠ Note:

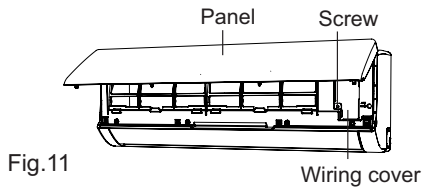
(1) Add insulating pipe in the indoor drain hose in order to prevent condensation.

(2) The plastic expansion particles are not provided. (As show in Fig.10)

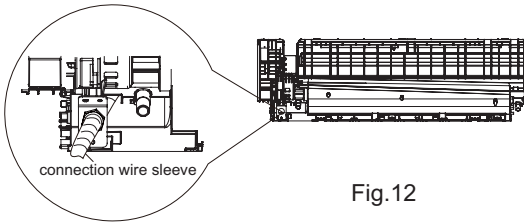


7. Connect Wire of Indoor Unit

(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)



(2) Fix the wire crossing board on connection wire sleeve at the bottom case; let the connection wire sleeve go through the wire crossing hole at the back of indoor unit, and then pull it out from the front.(As show in Fig.12)



(3) Remove the wire clip; connect the power connection wire to the wiring terminal; tighten the screw and then fix the power connection wire with wire clip.(As show in Fig.13)

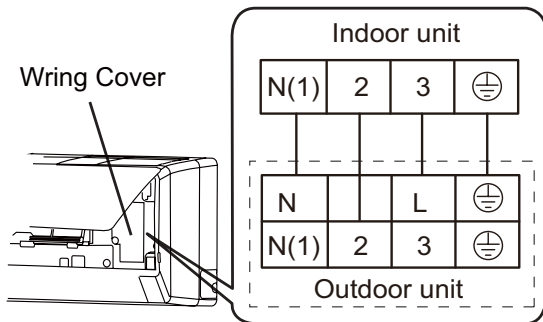


Fig.13

(4) Put wiring cover back and then tighten the screw.
(5) Close the panel.

⚠ Note:

- (1) All wires of indoor unit and outdoor unit should be connected by a professional.
- (2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- (3) For the air conditioner with plug, the plug should be reachable after finishing installation.
- (4) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 1/8inch.

8. Bind up Pipe

- (1) Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)
- (2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)
- (3) Bind them evenly.
- (4) The liquid pipe and gas pipe should be bound separately at the end.

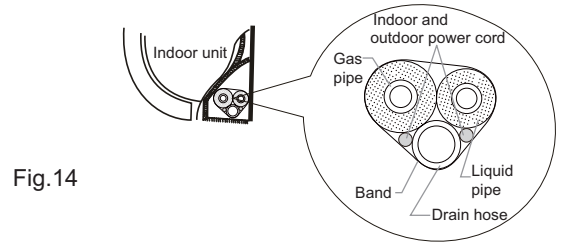


Fig.14

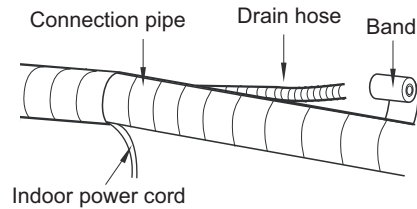


Fig.15

⚠ Note:

- (1) The power cord and control wire can't be crossed or winding.
- (2) The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

- (1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.
- (2) Hang the indoor unit on the wall-mounting frame.
- (3) Stuff the gap between pipes and wall hole with sealing gum.
- (4) Fix the wall pipe.(As show in Fig.16)
- (5) Check if the indoor unit is installed firmly and closed to the wall.(As show in Fig.17)

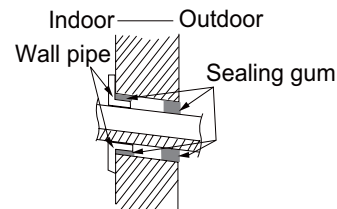


Fig.16

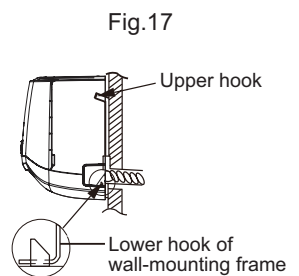


Fig.17

⚠ Note:

Do not bend the drain hose too excessively in order to prevent blocking.

8.6 Installation of Outdoor Unit

1. Fix the Support of Outdoor Unit(select it according to the actual installation situation)

- (1) Select installation location according to the house structure.
- (2) Fix the support of outdoor unit on the selected location with expansion screws.

⚠ Note:

- (1) Take sufficient protective measures when installing the outdoor unit.
- (2) Make sure the support can withstand at least four times the unit weight.
- (3) The outdoor unit should be installed at least 1 1/6inch above the floor in order to install drain joint.(As show in Fig.18)
- (4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

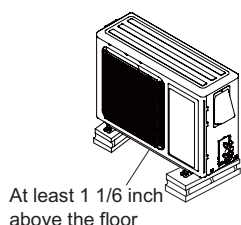


Fig.18

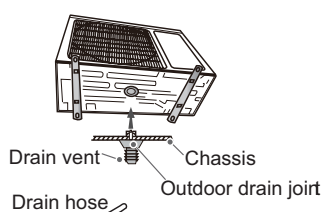


Fig.19

2. Install Drain Joint(Only for cooling and heating unit)

- (1) Connect the outdoor drain joint into the hole on the chassis.
 - (2) Connect the drain hose into the drain vent.
- (As show in Fig.19)

3. Fix Outdoor Unit

- (1) Place the outdoor unit on the support.
 - (2) Fix the foot holes of outdoor unit with bolts.
- (As show in Fig.20)

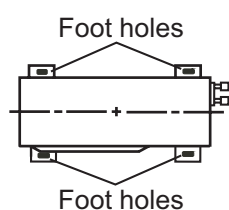


Fig.20

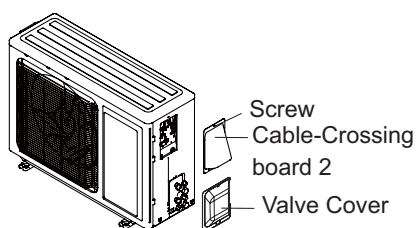


Fig.21

4. Connect Indoor and Outdoor Pipes

- (1) Remove the screw on the cable-crossing board 2 and valve cover of outdoor unit and then remove the cable-crossing board 2 and valve cover .(As show in Fig.21)
- (2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.22)

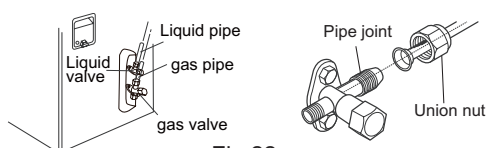


Fig.22

- (3) Pretightening the union nut with hand.
- (4) Tighten the union nut with torque wrench .

Refer to the following table for wrench moment of force :

Hex nut diameter(inch)	Tightening torque(ft·lbf)
Φ1/4	11.10~14.75
Φ3/8	22.82~29.50
Φ1/2	33.19~40.56
Φ5/8	44.24~47.94
Φ3/4	51.32~55.31

5. Connect Outdoor Electric Wire

- (1)Remove the cable-crossing board 2 of right side plate for outdoor unit.
 - (2)Remove the wire clamps, pass the power connection wire and power cord through the cable-crossing board 1 to connect the terminal.
- The wiring distribution must match with the electric diagram.
- (3)Fix the power connection wire and power cord with wire clamps tightly.
 - (4)Check whether the wiring is fixed well.
 - (5)Install the cable-crossing board 2.

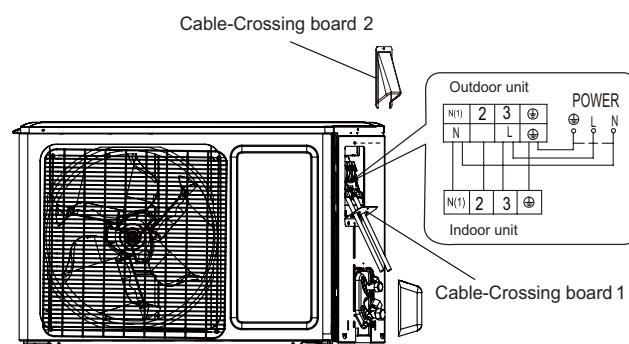


Fig.23

⚠ Note:

- (1) After tightening the screw, pull the power cord slightly to check if it is firm.
- (2) Never cut the power connection wire to prolong or shorten the distance.

6. Neaten the Pipes

- (1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 4 inch.
- (2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.(As show in Fig.24)

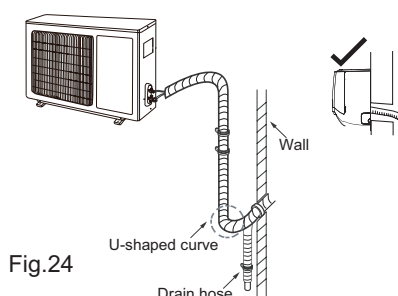


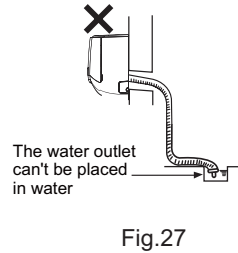
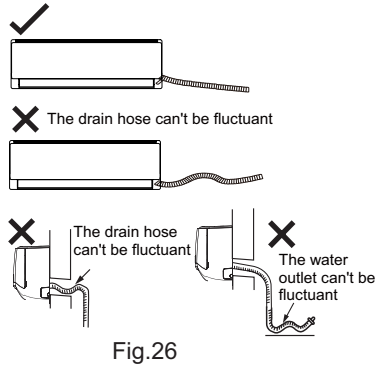
Fig.24



Fig.25

⚠ Note:

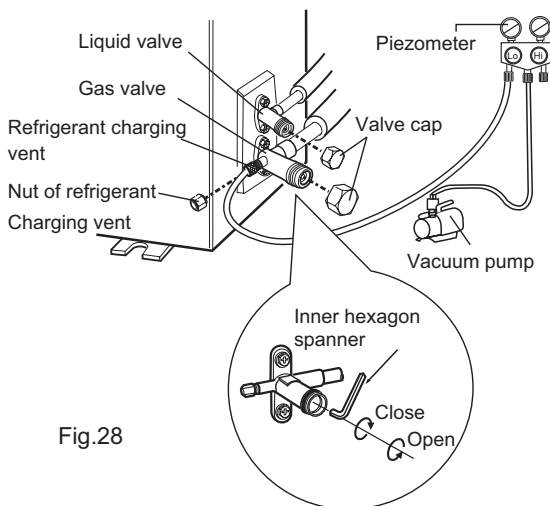
- (1) The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
- (2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)
- (3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)



8.7 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

- (1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
- (2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
- (3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
- (4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
- (5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
- (6) Tighten the screw caps of valves and refrigerant charging vent.(As show in Fig.28)



2. Leakage Detection

- (1) With leakage detector:
Check if there is leakage with leakage detector.
- (2) With soap water:

If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.

8.8 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

No.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating).
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.

2. Test Operation

- (1) Preparation of test operation
 - The client approves the air conditioner installation.
 - Specify the important notes for air conditioner to the client.
- (2) Method of test operation
 - Put through the power, press ON/OFF button on the remote controller to start operation.
 - Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
 - If the ambient temperature is lower than 61°F, the air conditioner can't start cooling.

9. Maintenance

9.1 Flashing LED of Indoor/Outdoor Unit and Primary Judgement

No.	Malfunction Name	Display Method of Indoor Unit			Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)	Operation Indicator	Cool Indicator	Heating Indicator	Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s		
							Yellow Indicator	Red Indicator	Green Indicator
1	High pressure protection of system	E1	OFF 3s and blink once						
2	Antifreezing protection	E2	OFF 3S and blink twice				OFF 1S and blink 3 times		
3	In defect of refrigerant	F0						OFF 1S and blink 9 times	
4	High discharge temperature protection of compressor	E4	OFF 3S and blink 4 times				OFF 1S and blink 7 times		
5	Overcurrent protection	E5	OFF 3S and blink 5 times				OFF 1S and blink 5 times		
6	Communication Malfunction	E6	OFF 3S and blink 6 times				Always ON		
7	High temperature resistant protection	E8	OFF 3S and blink 8 times				OFF 1S and blink 6 times		
8	EEPROM malfunction	EE				OFF 3S and blink 15 times	OFF 1S and blink 11 times		
9	Limit/decrease frequency due to high temperature of module	EU		OFF 3S and blink 6 times	OFF 3S and blink 6 times				
10	Malfunction protection of jumper cap	C5	OFF 3S and blink 15 times						

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
11	Gathering refrigerant	Fo	OFF 3S and blink 1 times	OFF 3S and blink 1 times		OFF 1S and blink 17 times			When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
12	Indoor ambient temperature sensor is open/short circuited	F1		OFF 3S and blink once					During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	1. Loosening or bad contact of indoor ambient temp. sensor and mainboard terminal. 2. Components in mainboard fell down leads short circuit. 3. Indoor ambient temp. sensor damaged.(check with sensor resistance value chart) 4. Mainboard damaged.
13	Indoor evaporator temperature sensor is open/short circuited	F2		OFF 3S and blink twice					AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation	1. Loosening or bad contact of Indoor evaporator temp. sensor and mainboard terminal. 2. Components on the mainboard fall down leads short circuit. 3. Indoor evaporator temp. sensor damaged.(check temp. sensor value chart for testing) 4. Mainboard damaged.
14	Outdoor ambient temperature sensor is open/short circuited	F3		OFF 3S and blink 3 times			OFF 1S and blink 6 times		During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
15	Outdoor condenser temperature sensor is open/short circuited	F4		OFF 3S and blink 4 times			OFF 1S and blink 5 times		During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation.	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
16	Outdoor discharge temperature sensor is open/short circuited	F5		OFF 3S and blink 5 times			OFF 1S and blink 7 times		During cooling and drying operation, compressor will sop after operating for about 3 mins, while indoor fan will operate; During heating operation, the complete unit will stop after operating for about 3 mins.	1.Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor) 2.The head of temperature sensor hasnt been inserted into the copper tube
17	Limit/ decrease frequency due to overload	F6		OFF 3S and blink for 6 times			OFF 1S and blink 3 times		All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
18	Decrease frequency due to overcurrent	F8		OFF 3S and blink 8 times			OFF 1S and blink once		All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overload

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
19	Decrease frequency due to high air discharge	F9		OFF 3S and blink 9 times			OFF 1S and blink twice		All loads operate normally, while operation frequency for compressor is decreased	Overload or temperature is too high; Refrigerant is insufficient; Malfunction of electric expansion valve (EKV)
20	Limit/ decrease frequency due to antifreezing	FH		OFF 3S and blink 2 times	OFF 3S and blink 2 times		OFF 1S and blink 4 times		All loads operate normally, while operation frequency for compressor is decreased	Poor air-return in indoor unit or fan speed is too low
21	Voltage for DC bus-bar is too high	PH		OFF 3S and blink 11 times		OFF 1S and blink 13 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 265VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
22	Voltage of DC bus-bar is too low	PL			OFF 3S and blink 21 times	OFF 1S and blink 12 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 150VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
23	Compressor Min frequency in test state	P0		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during min. cooling or min. heating test
24	Compressor rated frequency in test state	P1		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during nominal cooling or nominal heating test
25	Compressor maximum frequency in test state	P2		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during max. cooling or max. heating test

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
26	Compressor intermediate frequency in test state	P3		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during middle cooling or middle heating test
27	Overcurrent protection of phase current for compressor	P5		OFF 3S and blink 15 times					During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
28	Charging malfunction of capacitor	PU			OFF 3S and blink 17 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Refer to the part three—charging malfunction analysis of capacitor
29	Malfunction of module temperature sensor circuit	P7			OFF 3S and blink 18 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
30	Module high temperature protection	P8			OFF 3S and blink 19 times				During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
31	Decrease frequency due to high temperature resistant during heating operation	H0			OFF 3S and blink 10 times				All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
32	Static dedusting protection	H2			OFF 3S and blink twice					
33	Overload protection for compressor	H3			OFF 3S and blink 3 times	OFF 1S and blink 8 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload)

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
34	System is abnormal	H4			OFF 3S and blink 4 times	OFF 1S and blink 6 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (overload, high temperature resistant)
35	IPM protection	H5			OFF 3S and blink 5 times	OFF 1S and blink 4 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
36	Module temperature is too high	H5			OFF 3S and blink 5 times	OFF 1S and blink 10 times				
37	Internal motor (fan motor) do not operate	H6	OFF 3S and blink 11 times						Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location.	1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3. Fan motor is stalling. 4. Motor malfunction. 5. Malfunction of mainboard rev detecting circuit.
38	Desynchronizing of compressor	H7			OFF 3S and blink 7 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
39	PFC protection	HC			OFF 3S and blink 6 times	OFF 1S and blink 14 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis
40	Outdoor DC fan motor malfunction	L3	OFF 3S and blink 23 times				OFF 1S and blink 14 times		Outdoor DC fan motor malfunction lead to compressor stop operation,	DC fan motor malfunction or system blocked or the connector loosed
41	power protection	L9	OFF 3S and blink 20 times			OFF 1S and blink 9 times			compressor stop operation and Outdoor fan motor will stop 30s latter , 3 minutes latter fan motor and compressor will restart	To protect the electronical components when detect high power
42	Indoor unit and outdoor unit doesn't match	LP	OFF 3S and blink 19 times			OFF 1S and blink 16 times			compressor and Outdoor fan motor can't work	Indoor unit and outdoor unit doesn't match
43	Failure start-up	LC			OFF 3S and blink 11 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis

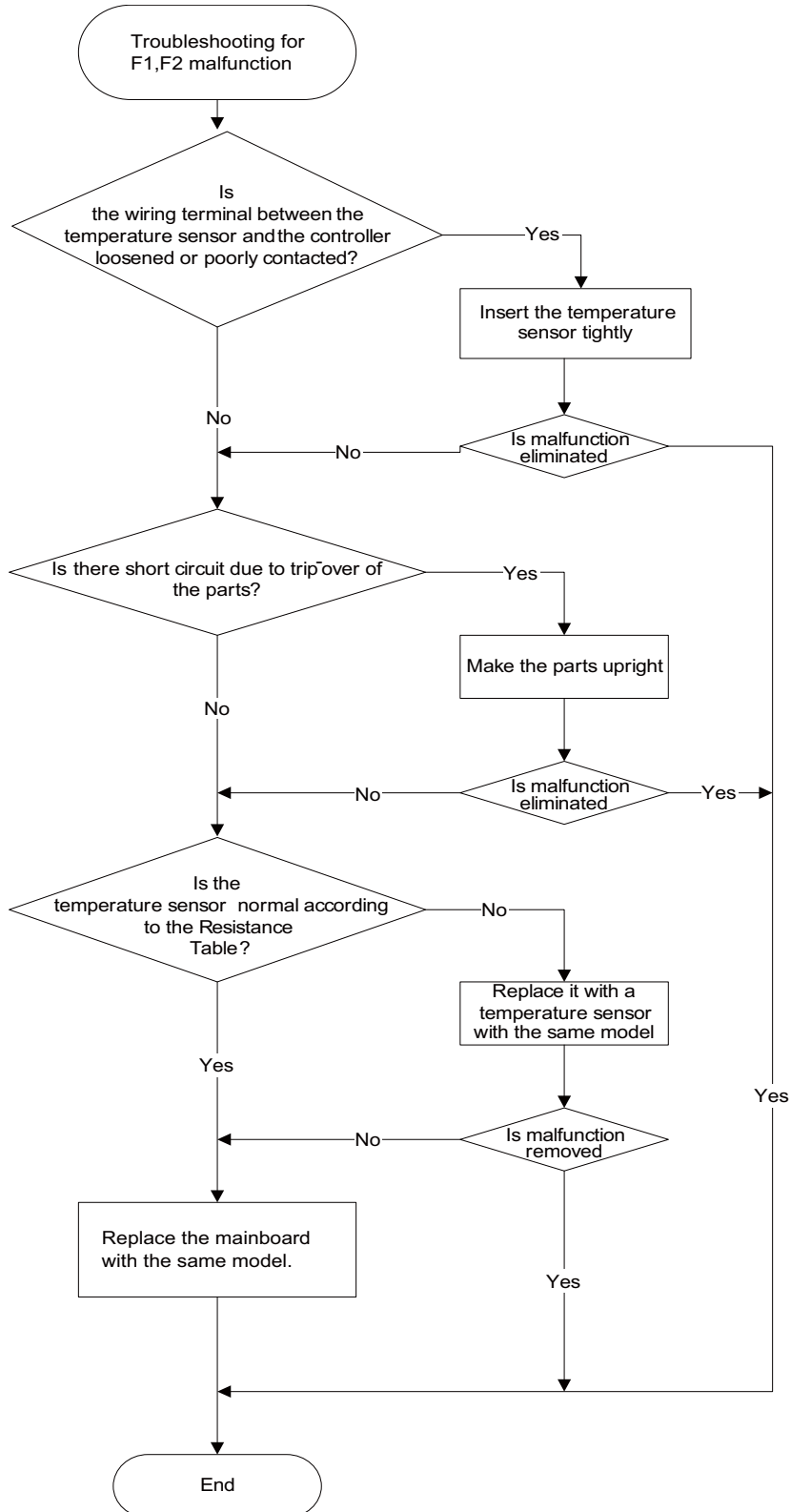
No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
44	Malfunction of phase current detection circuit for compressor	U1			OFF 3S and blink 13 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
45	Malfunction of voltage dropping for DC bus-bar	U3			OFF 3S and blink 20 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Supply voltage is unstable
46	Malfunction of complete units current detection	U5		OFF 3S and blink 13 times					During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation.	Theres circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1.
47	The four-way valve is abnormal	U7		OFF 3S and blink 20 times					If this malfunction occurs during heating operation, the complete unit will stop operation.	1.Supply voltage is lower than AC175V; 2.Wiring terminal 4V is loosened or broken; 3.4V is damaged, please replace 4V.
48	Zero-crossing malfunction of outdoor unit	U9	OFF 3S and blink 18 times						During cooling operation, compressor will stop while indoor fan will operate; during heating,the complete unit will stop operation.	Replace outdoor control panel AP1
49	Frequency limiting (power)						OFF 1S and blink 13 times			
50	Compressor running					OFF 1S and blink once				
51	The temperature for turning on the unit is reached						OFF 1S and blink 8 times			
52	Frequency limiting (module temperature)						OFF 1S and blink 11 times			

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
53	Normal communication							OFF 0.5S and blink once		
54	Defrosting				OFF 3S and blink once (during blinking, ON 10s and OFF 0.5s)	OFF 1S and blink twice			Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	Its the normal state

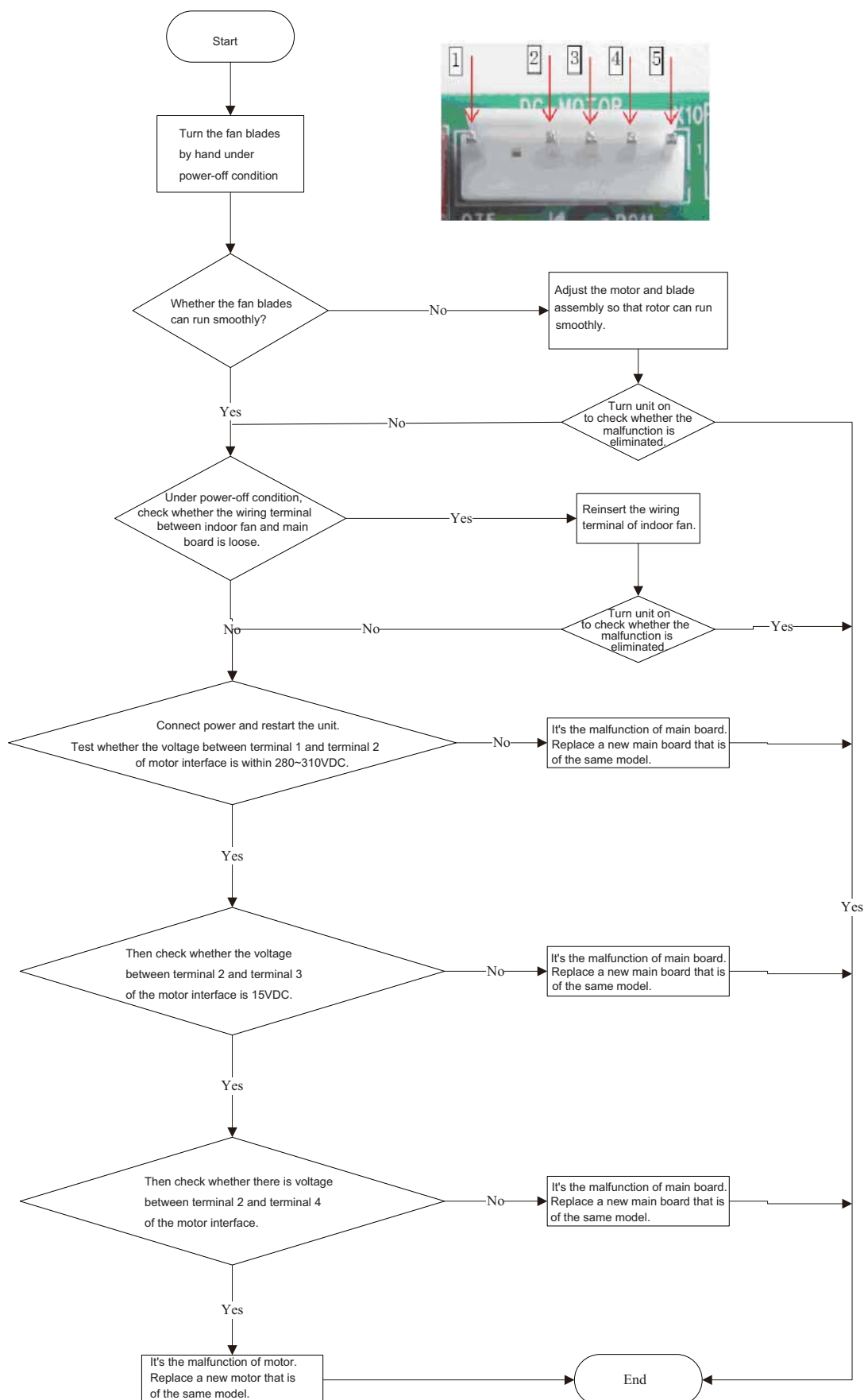
9.2 Troubleshooting for Main Malfunction

Indoor Unit

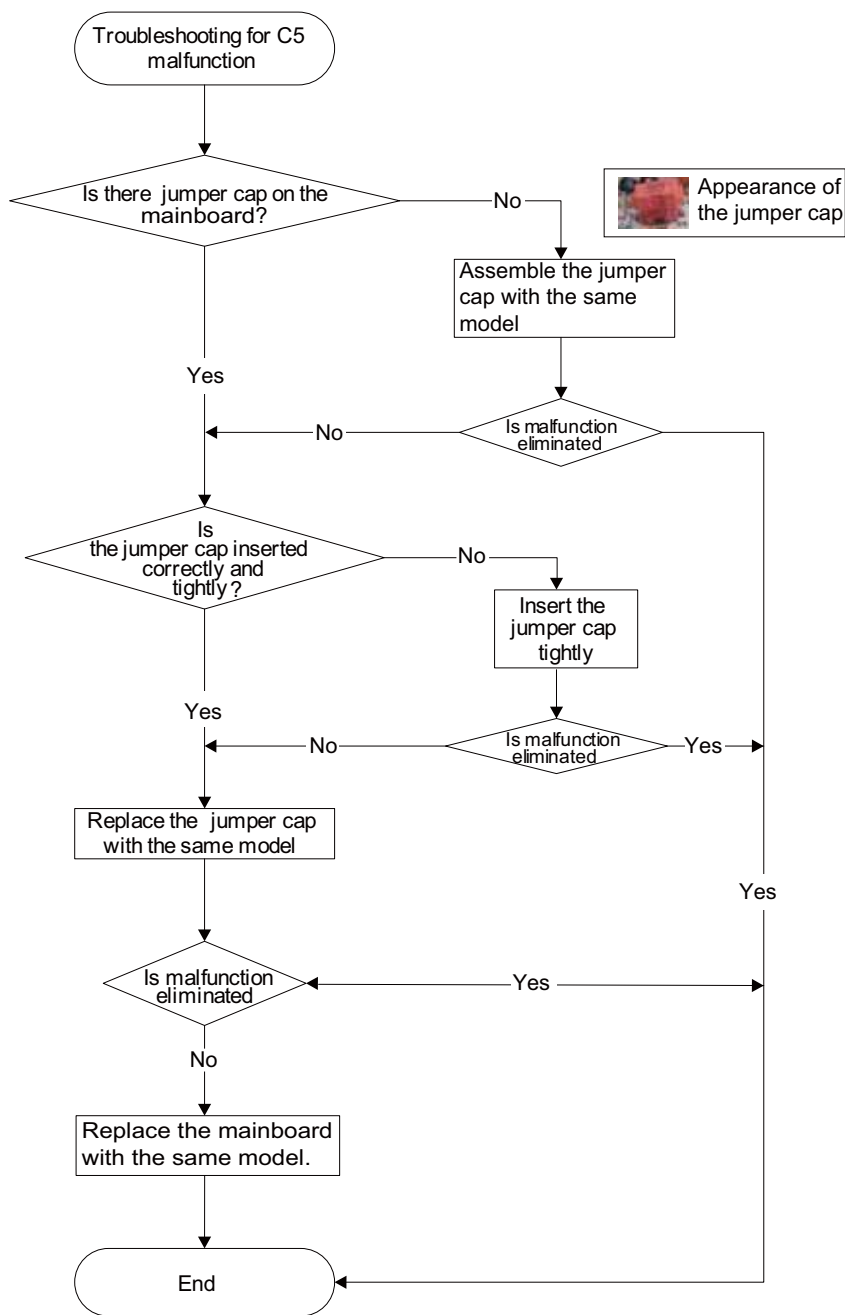
(1) Malfunction of Temperature Sensor F1,F2



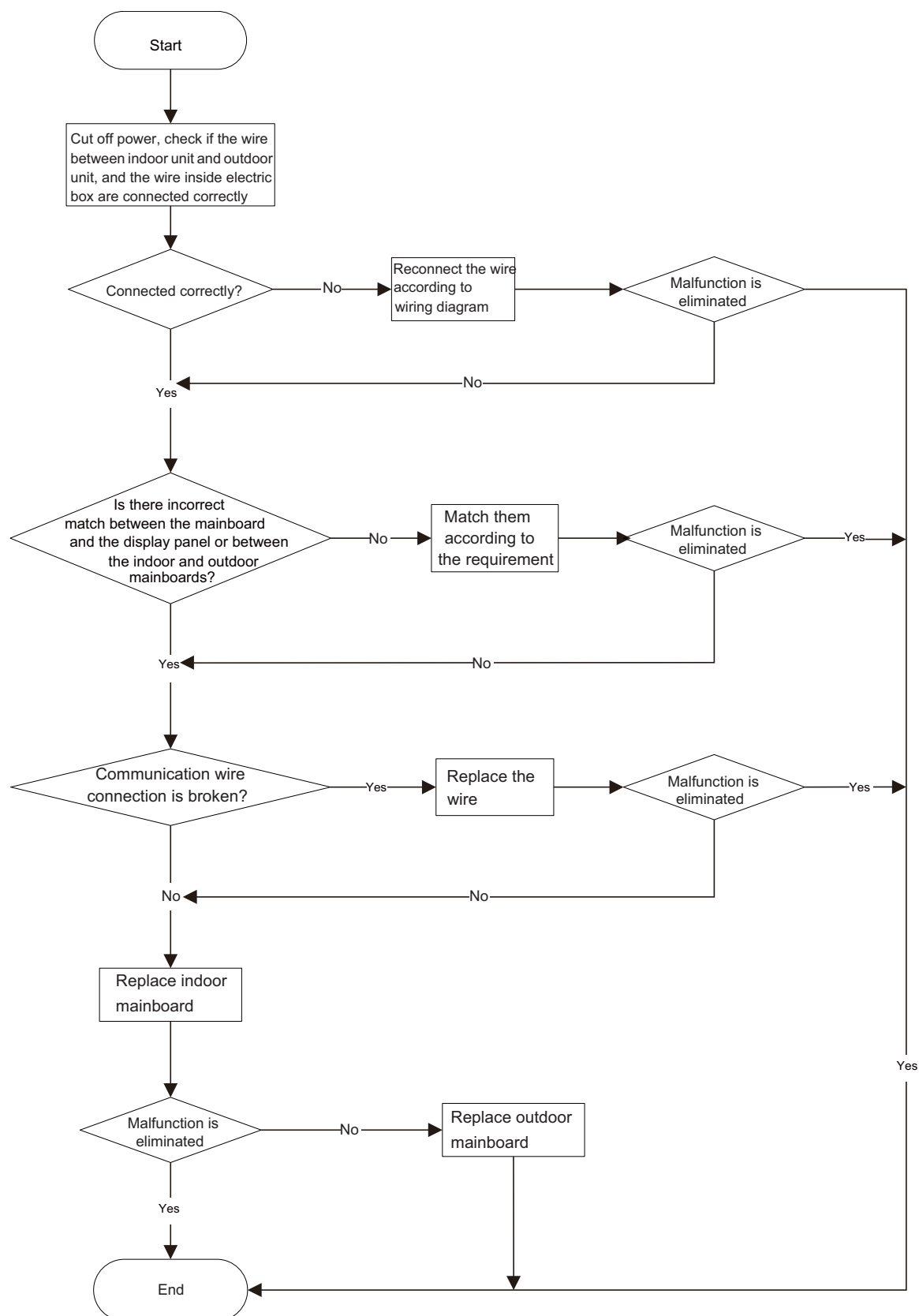
(2) Malfunction of Blocked Protection of IDU Fan Motor H6



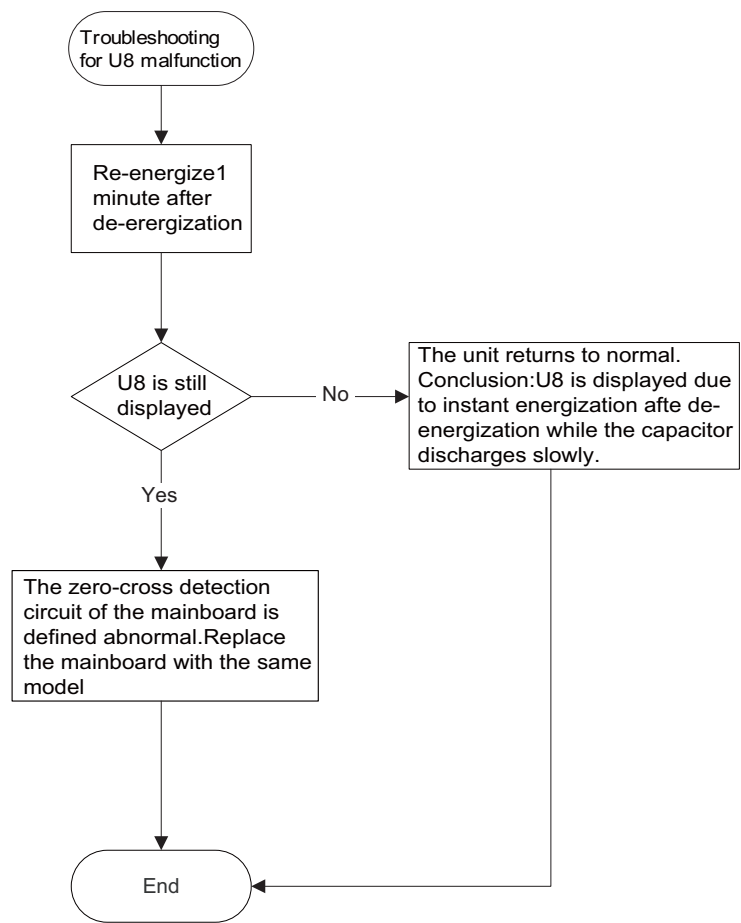
(3) Malfunction of Protection of Jumper Cap C5



(4) Communication malfunction E6



(5) Malfunction of Zero-crossing Inspection Circuit Malfunction of the IDU Fan Motor U8



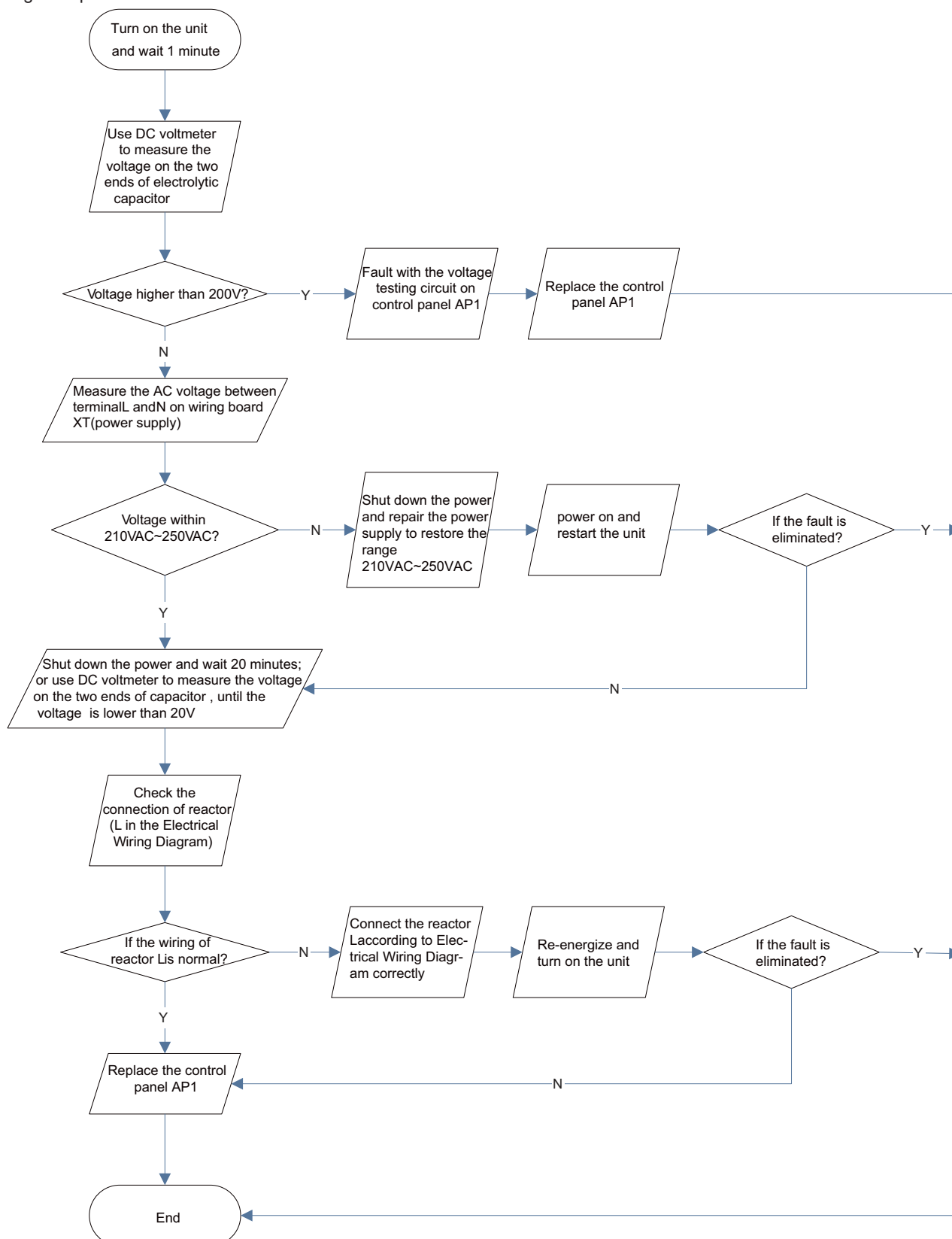
Outdoor Unit

(1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Points:

- Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC.
- Is the reactor (L) correctly connected? Is the connection loose or fallen? Is the reactor (L) damaged?

Fault diagnosis process:

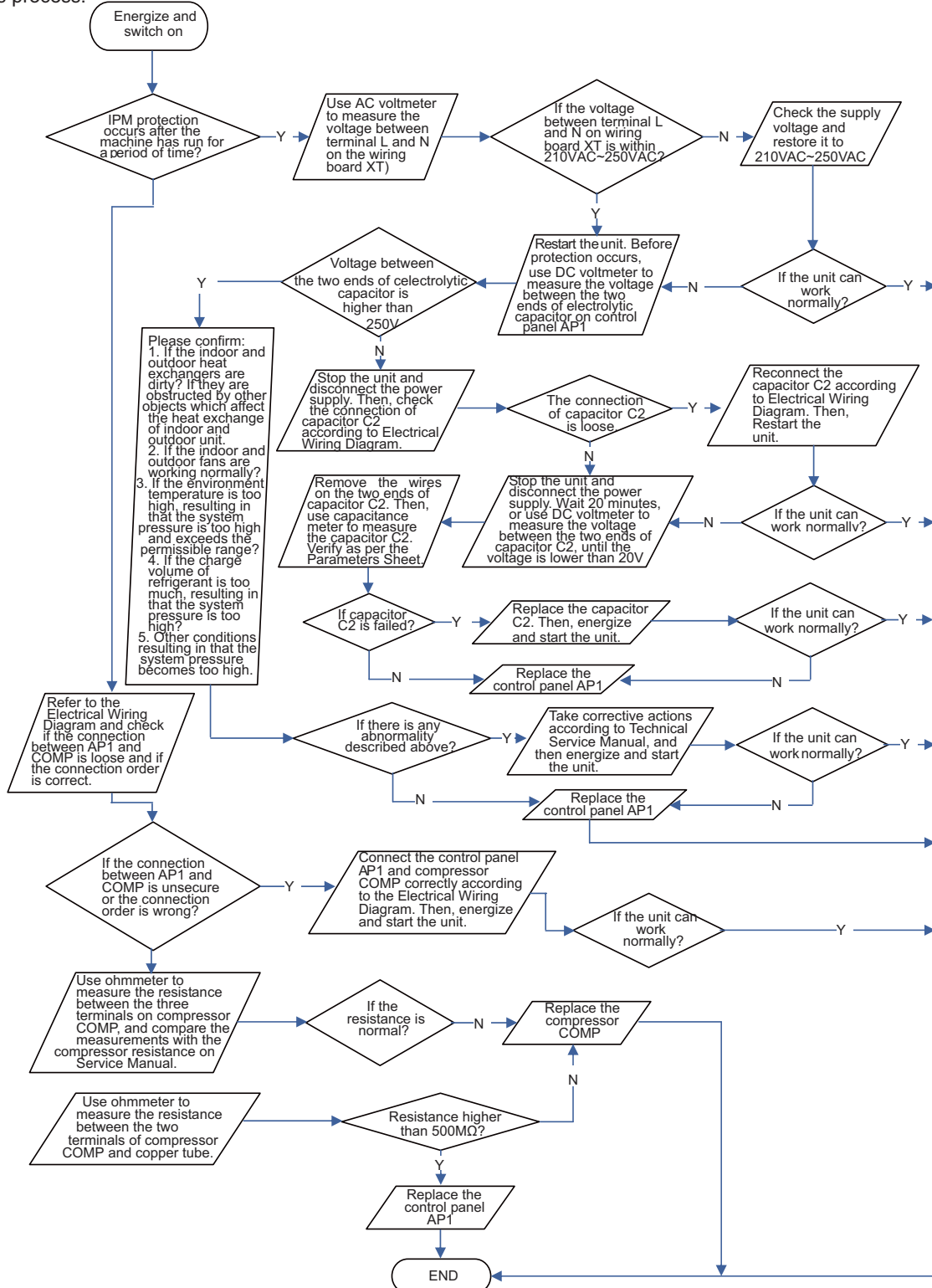


(2) IPM Protection, Out-of-step Fault, Compressor Phase Overcurrent (AP1 below refers to the outdoor control panel)

Main check points:

- Is the connection between control panel AP1 and compressor COMP secure? Loose? Is the connection in correct order?
- Is the voltage input of the machine within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
- Is the compressor coil resistance normal? Is the insulation of compressor coil against the copper tube in good condition?
- Is the working load of the machine too high? Is the radiation good?
- Is the charge volume of refrigerant correct?

Fault diagnosis process:

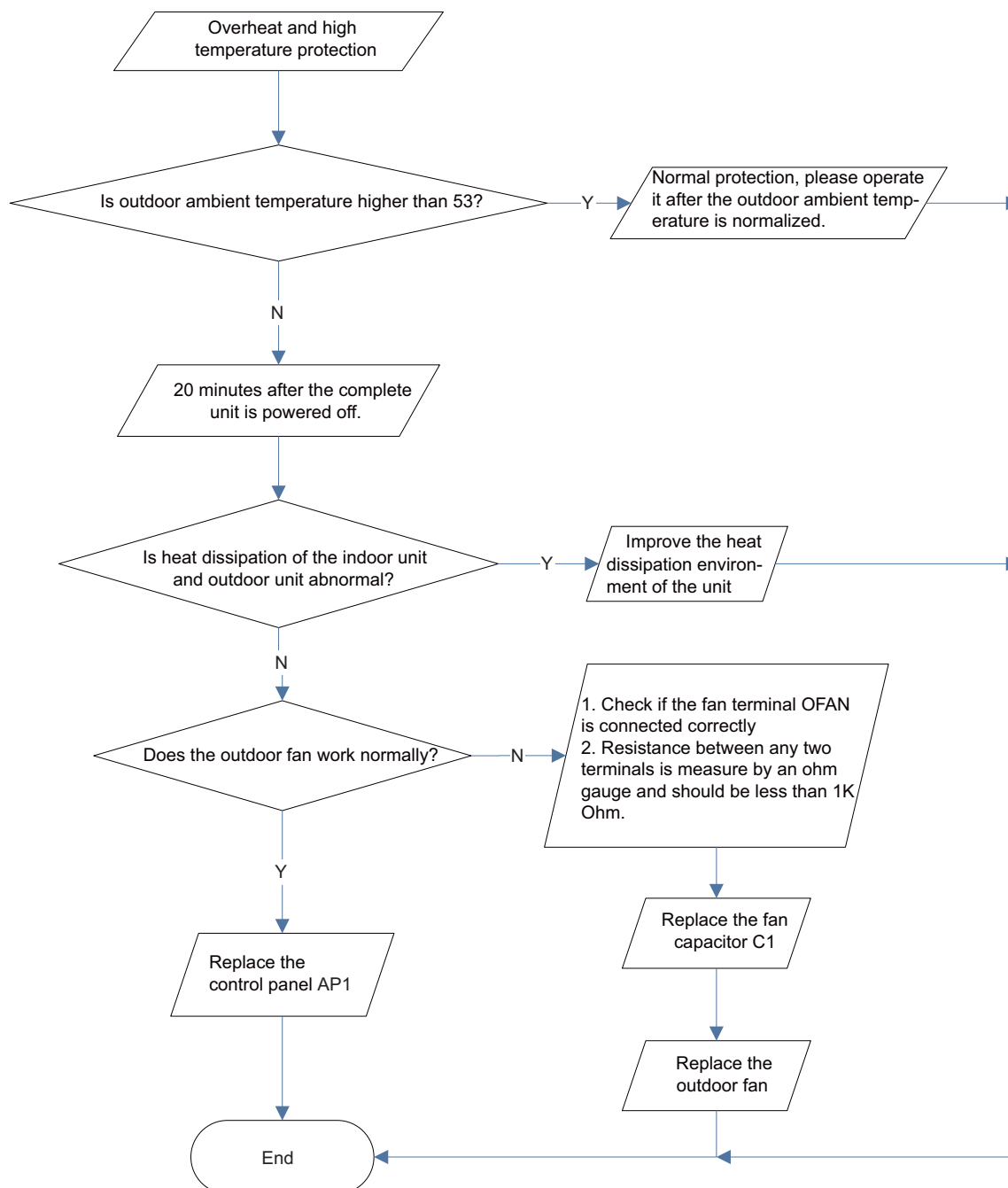


(3) High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Is outdoor ambient temperature in normal range?
- Are the outdoor and indoor fans operating normally?
- Is the heat dissipation environment inside and outside the unit good?

Fault diagnosis process:

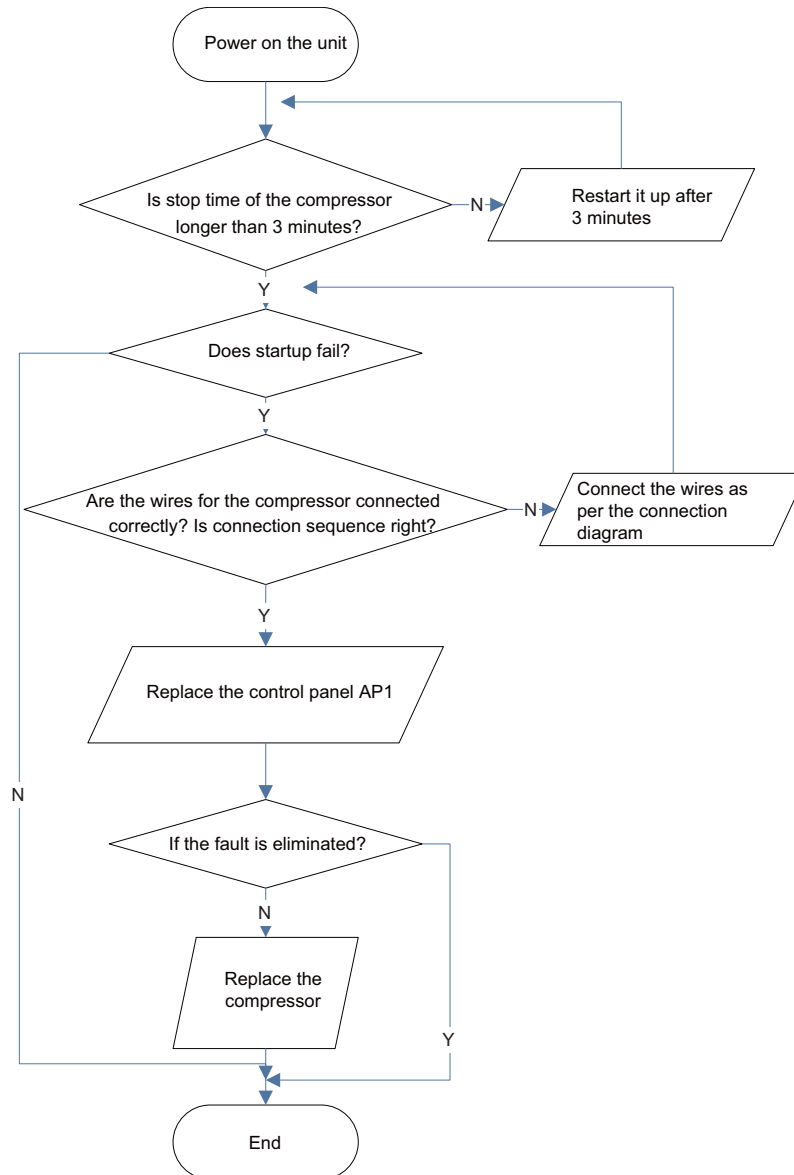


(4) Start-up failure (following AP1 for outdoor unit control board)

Mainly detect:

- Whether the compressor wiring is connected correct?
- Is compressor broken?
- Is time for compressor stopping enough?

Fault diagnosis process:

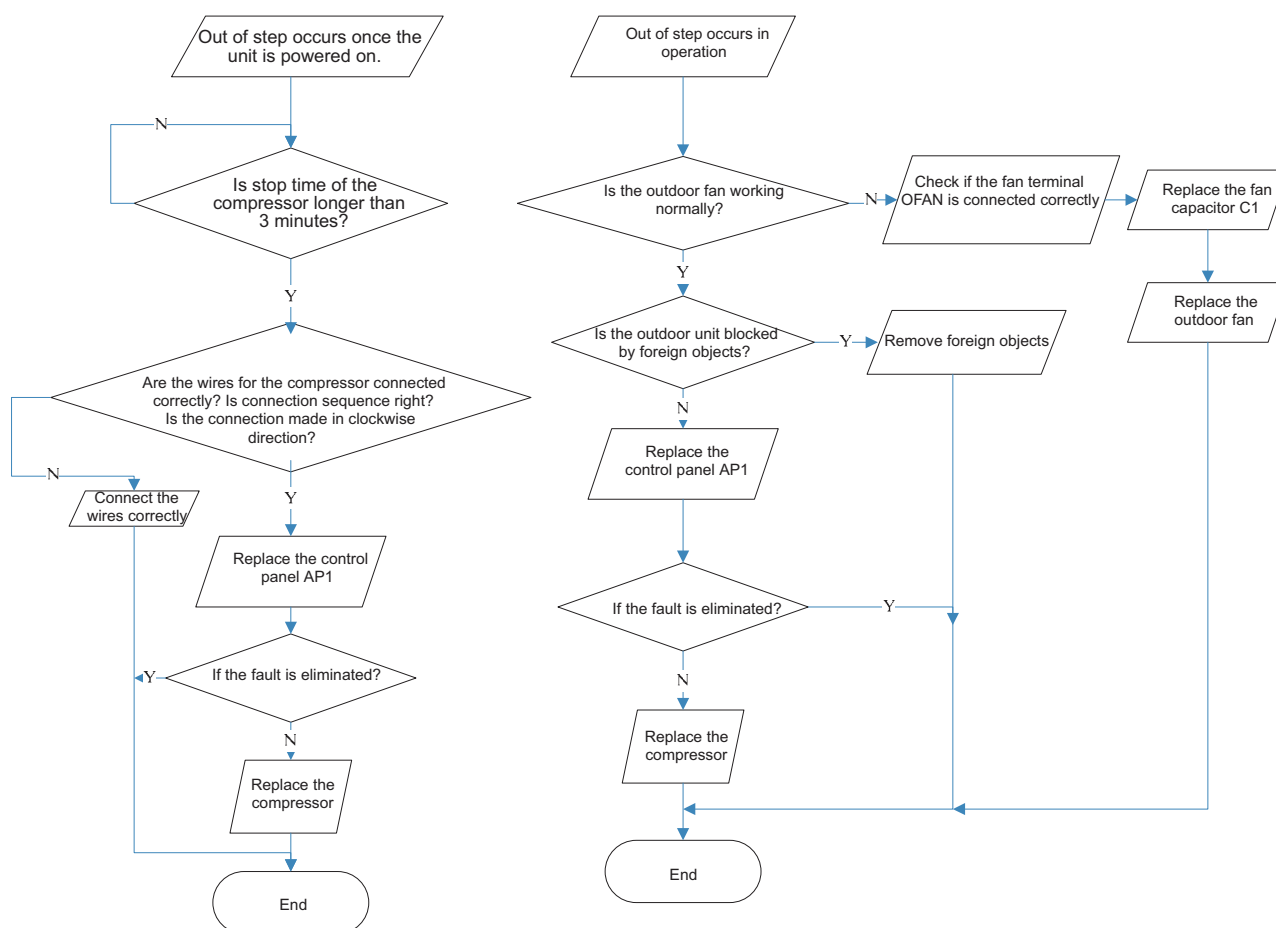


(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Is the system pressure too high?
- Is the input voltage too low?

Fault diagnosis process:

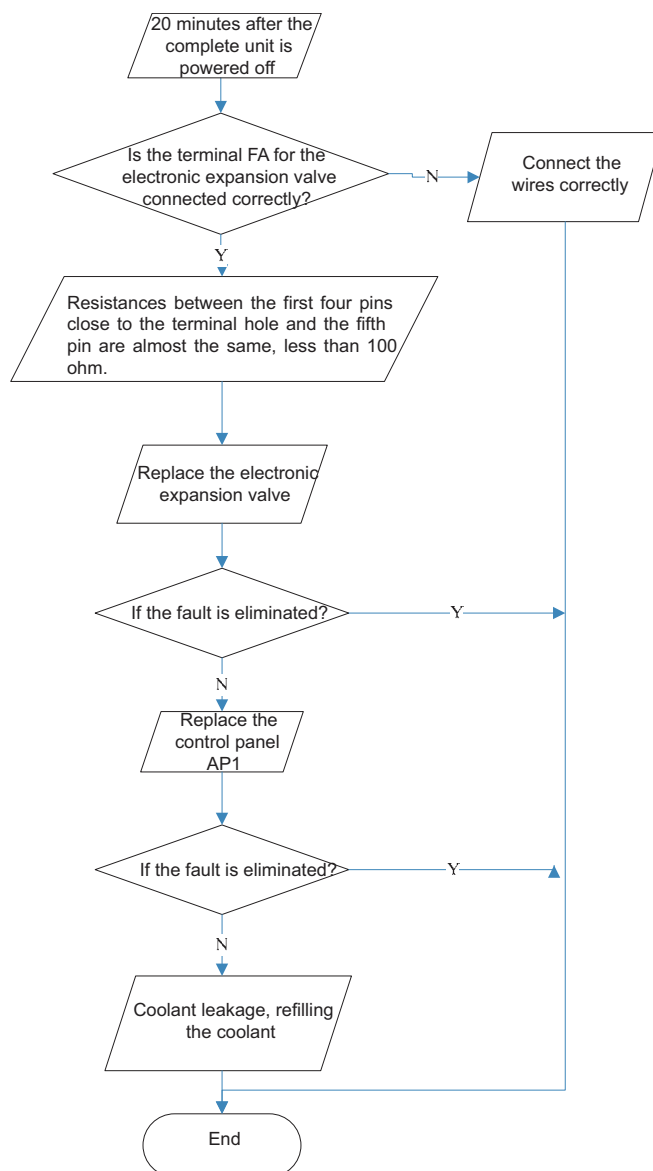


(6) Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)

Mainly detect:

- Is the PMV connected well or not? Is PMV damaged?
- Is refrigerant leaked?

Fault diagnosis process:

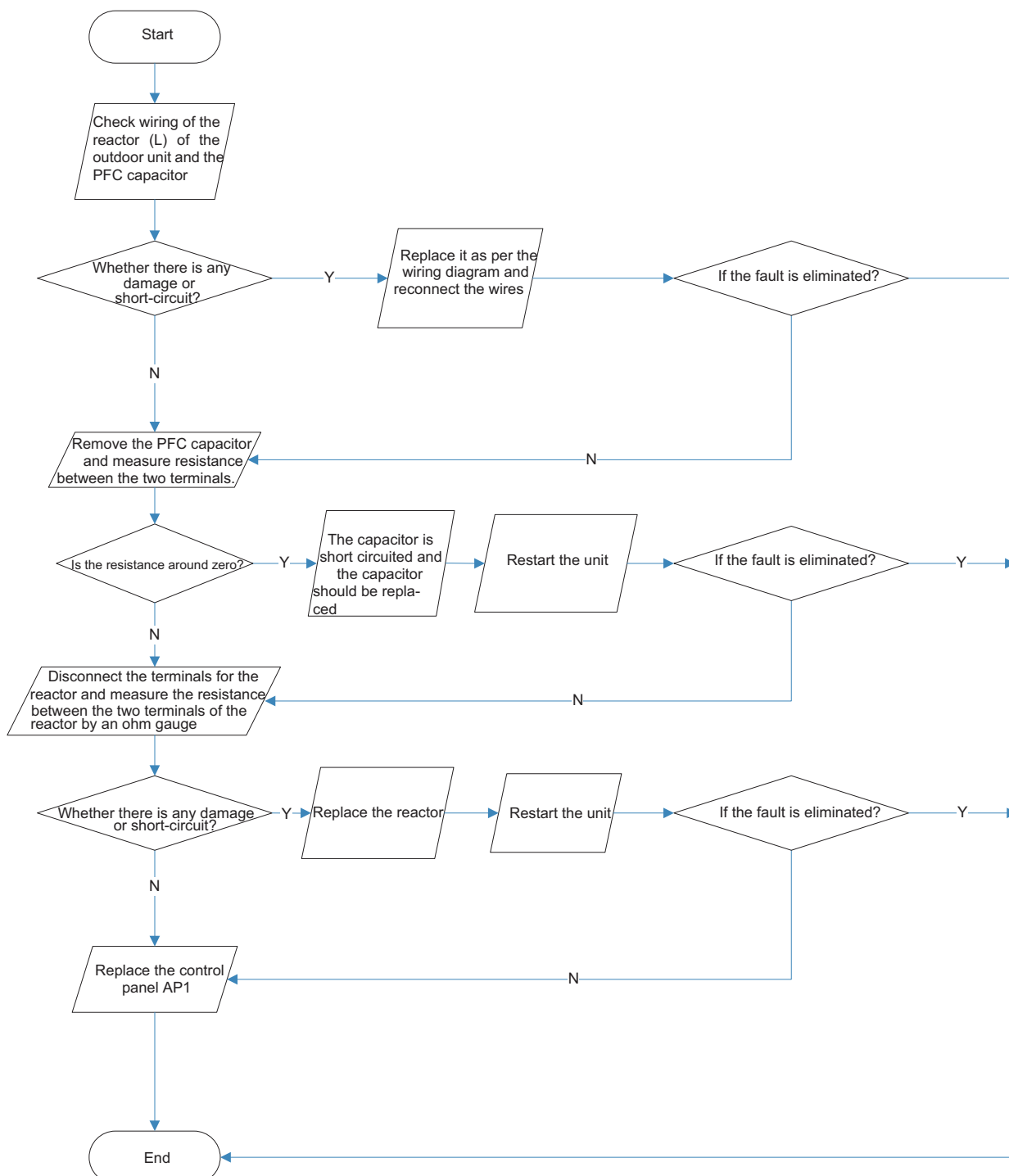


(7) Power factor correct or (PFC) fault (a fault of outdoor unit) (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Check if the reactor (L) of the outdoor unit and the PFC capacitor are broken

Fault diagnosis process:

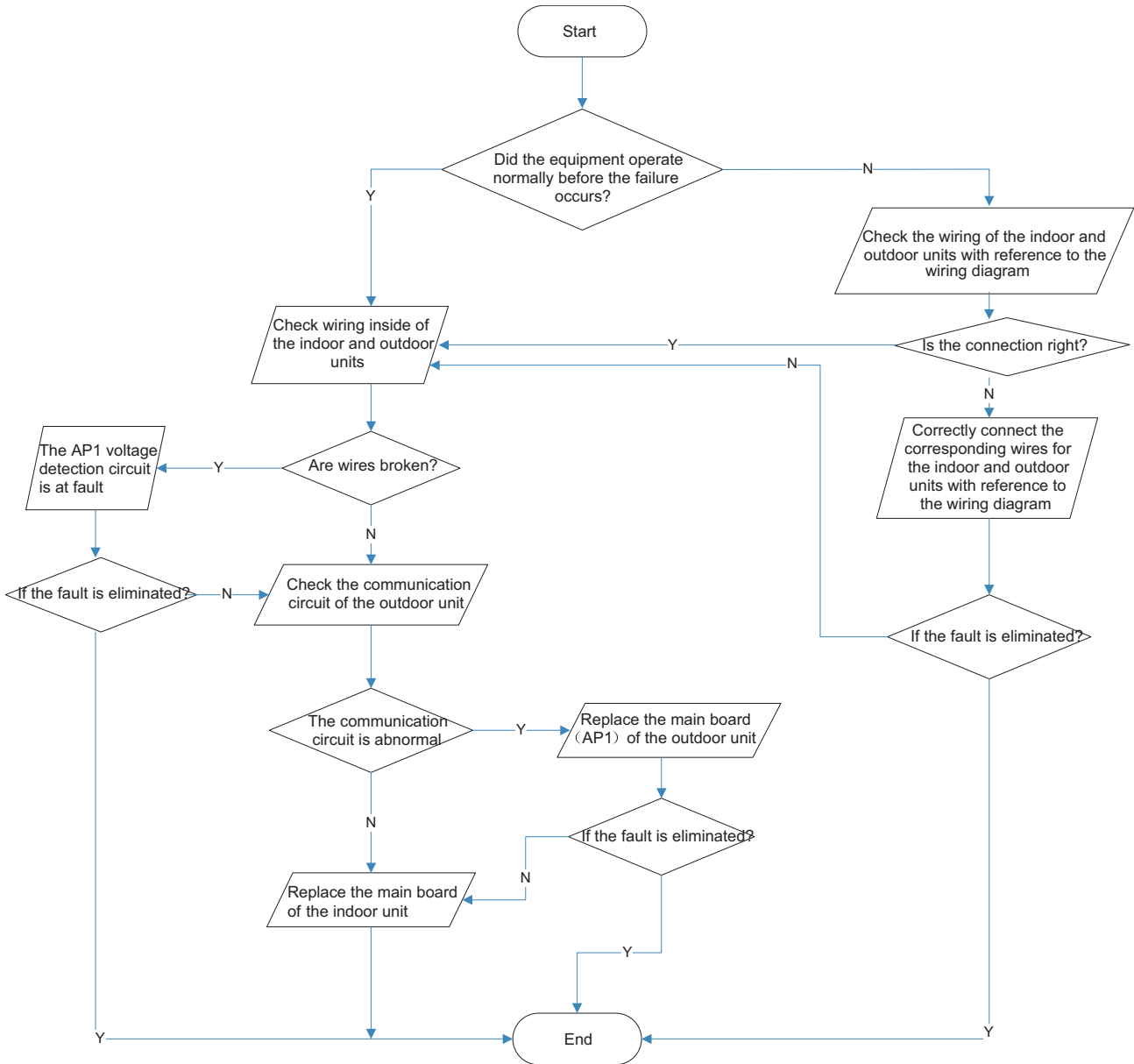


(8) Communication malfunction: (following AP1 for outdoor unit control board)

Mainly detect:

- Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?
- Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any damage?

Fault diagnosis process:



9.3 Maintenance Method for Normal Malfunction

1. Air Conditioner Can't be Started Up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see it's blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation position is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan Motor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioner is Leaking

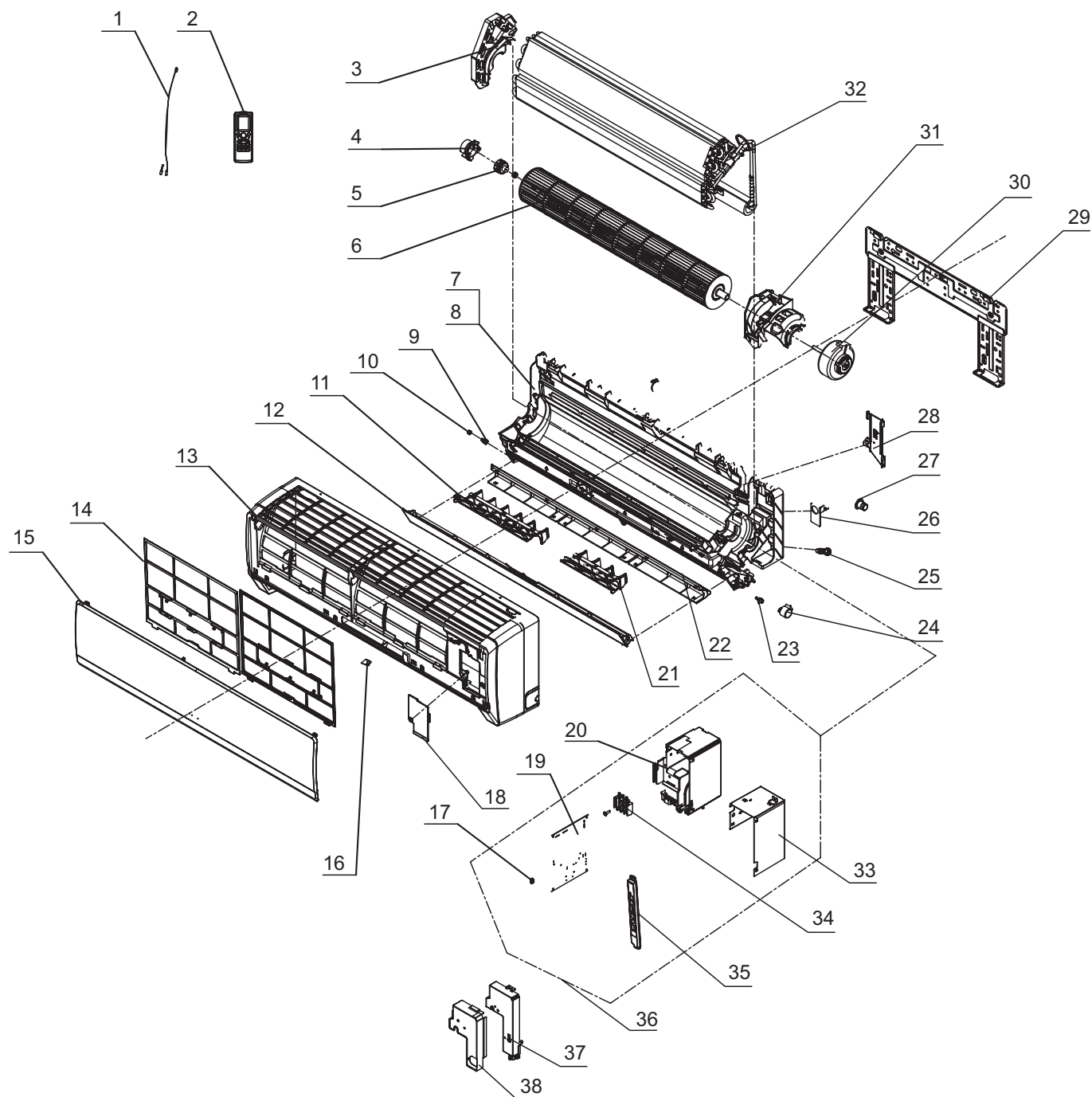
Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

7. Abnormal Sound and Vibration

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or there're parts touching together inside the indoor unit	There's abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts' position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or there're parts touching together inside the outdoor unit	There's abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts' position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Exploded View and Parts List

10.1 Indoor Unit

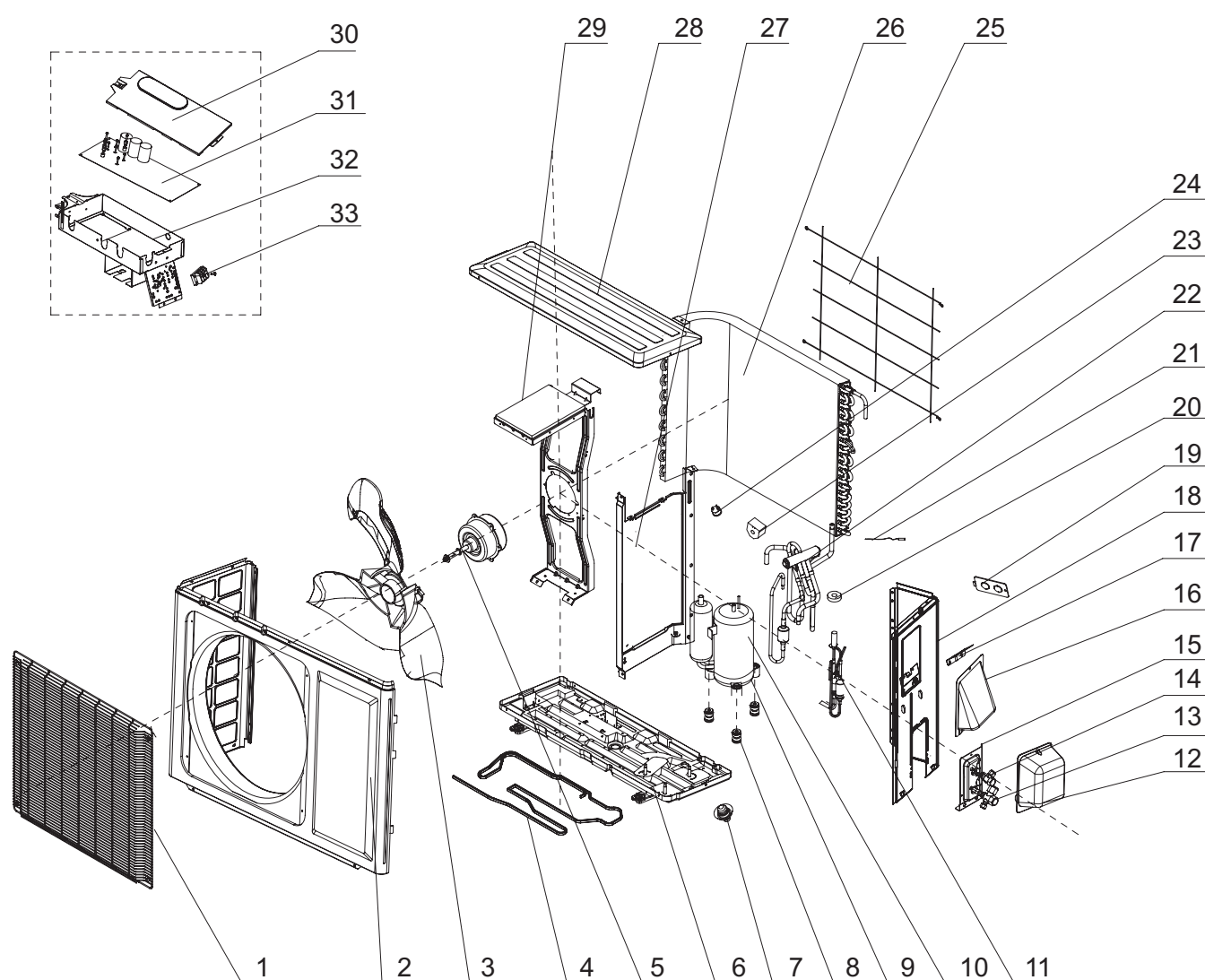


No.	Description	Part Code		Qty
		GWH09MB-A3DNA3C/I	GWH12MB-A3DNA3C/I	
	Product Code	CB171N10200	CB171N10100	
1	Temperature Sensor	3900031302	3900031302	1
2	Remote Controller	30510517	30510517	1
3	Evaporator Support	24212091	24212091	1
4	Ring of Bearing	26152022	26152022	1
5	O-Gasket sub-assy of Bearing	7651205102	7651205102	1
6	Cross Flow Fan	10352017	10352017	1
7	Rear Case assy	2220210309	2220210309	1
8	Rear Case	2220245405	2220245405	1
9	Axile Bush	10542036	10542036	1
10	Left Axile Bush	10512037	10512037	1
11	Air Louver 1	10512164	10512164	1
12	Guide Louver	10512157	10512157	1
13	Front Case Sub-assy	2001213908	2001213908	1
14	Filter Sub-Assy	11122204	11122204	2
15	Front Panel Sub-Assy	20012548	20012548	1
16	Screw Cover	24252016	24252016	1
17	Jumper	4202021902	4202021904	1
18	Electric Box Cover2	20122075	20122075	1
19	Main Board	30138000527	30138000527	1
20	Electric Box	2011216702	2011216702	1
21	Air Louver 2	10512165	10512165	1
22	Helicoid Tongue	26112163C	26112163C	1
23	Crank	10582070	10582070	1
24	Stepping Motor	1521212901	1521212901	1
25	Rubber Plug (Water Tray)	76712012	76712012	1
26	Cable Cross Plate	02122019	02122019	1
27	Drainage Hose	0523001401	0523001401	1
28	Connecting pipe clamp	26112164	26112164	1
29	Wall Mounting Frame	01252021	01252021	1
30	Fan Motor	15012511	15012511	1
31	Motor Press Plate	26112161	26112161	1
32	Evaporator Assy	0100242201	0100242201	1
33	Lower Shield Sub-assy of Electric Box	01592072	01592072	1
34	Terminal Board	42011233	42011233	1
35	Display Board	30565007	30565007	1
36	Electric Box Assy	10000201108	10000201109	1
37	Electric Box Cover1	2224213502	2224213502	1
38	Shield Cover of Electric Box Sub-assy	01592073	01592073	1

Above data is subject to change without notice.

10.2 Outdoor Unit

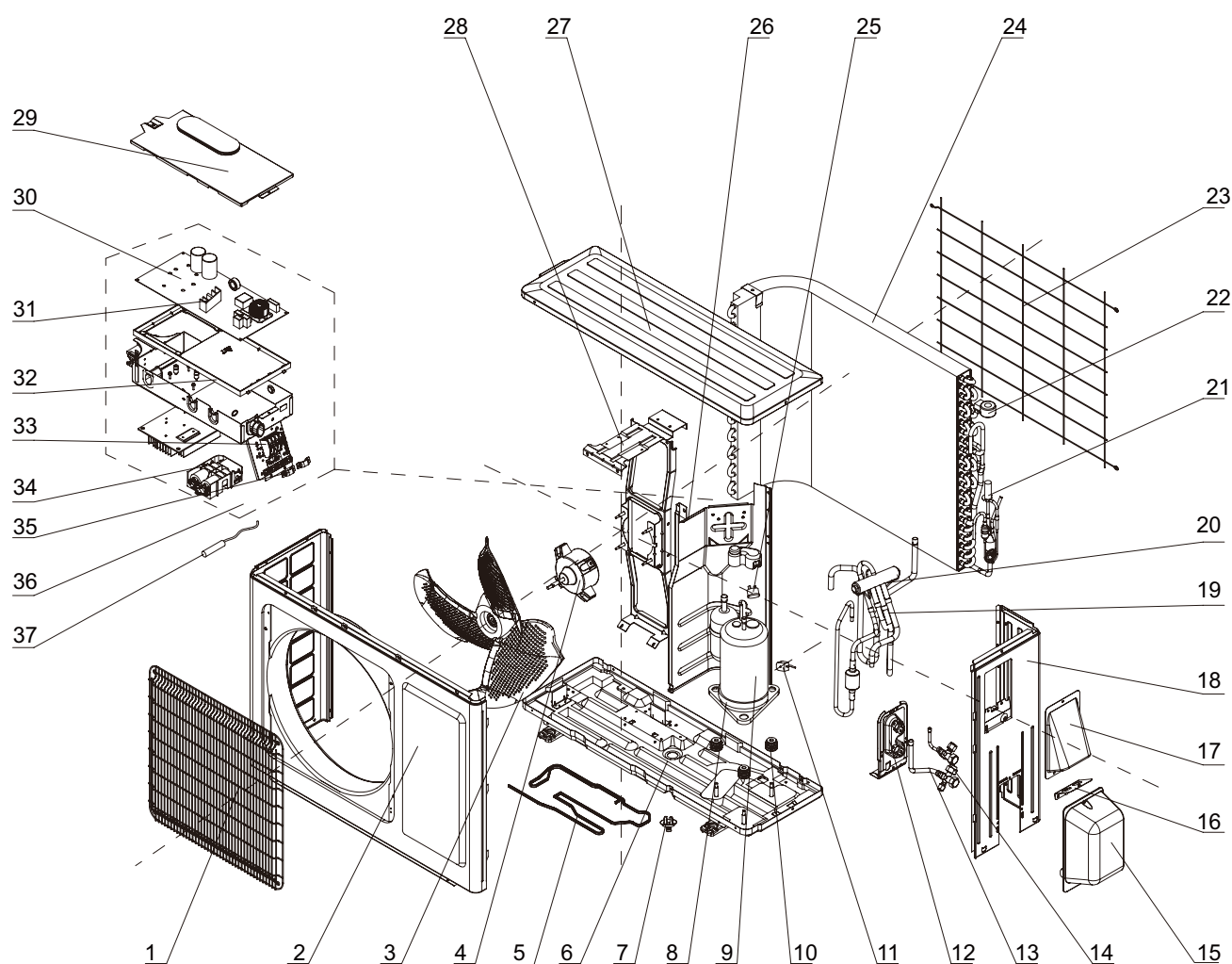
GWH09MB-A3DNA3C/O



No.	Description	Part Code	Qty
		GWH09MB-A3DNA3C/O	
	Product Code	CB171W10200	
1	Front Grill	01473012	1
2	Cabinet	0143305801P	1
3	Axial Flow Fan	10333012	1
4	Electrical Heater	76510010	1
5	Fan Motor	15013160	1
6	Chassis Sub-assy	01203881P	1
7	Drainage Connector	06123401	1
8	Compressor Gasket	76710302	3
9	Electrical Heater(Compressor)	76510009	1
10	Compressor and Fittings	00103862	1
11	Electric Expansion Valve Sub-Assy	03002600042	1
12	Valve Cover	2012300101	1
13	Valve	07100004	1
14	Valve	07100005	1
15	Valve Support	01713041	1
16	Cable Cross Plate 2	02123014P	1
17	Cable Cross Plate 1	02123013P	1
18	Right Side Plate Assy	013030713	1
19	Cover of Pass Wire	01413069	1
20	Electric Expand Valve Fitting	4300876704	1
21	Temperature Sensor	39000310	1
22	4-Way Valve Assy	03073003	1
23	Magnet Coil	4300040021	1
24	Compressor Overload Protector(External)	00180030	1
	Compressor Overload Protector(External)	00183031	1
	Compressor Overload Protector(External)	00183032	1
25	Rear Grill	01473057	1
26	Condenser Assy	01100200192	1
27	Clapboard Sub-Assy	01233034	1
28	Top Cover Plate	01253443	1
29	Motor Support Spot Welding Sub-assy	01703007	1
30	Electric Box Cover Sub-Assy	0260309601	1
31	Main Board	30138000534	1
32	Electric Box Assy	10000100197	1
33	Terminal Board	42010313	1

Above data is subject to change without notice.

GWH12MB-A3DNA3C/O



No.	Description	Part Code	Qty
		GWH12MB-A3DNA3C/O	
		Product Code	
		CB171W10100	
1	Front Grill	01473012	1
2	Front Panel	0153501201	1
3	Axial Flow Fan	10333012	1
4	Fan Motor	15013160	1
5	Electrical Heater	76510010	1
6	Chassis Sub-assy	01203881P	1
7	Drainage Connector	06123401	1
8	Electrical Heater(Compressor)	76510009	1
9	Compressor and Fittings	00103862	1
10	Compressor Gasket	76710302	3
11	Magnet Coil	4300040021	1
12	Valve Support	01713041	1
13	Valve	07100005	1
14	Valve	07100003	1
15	Valve Cover	22243010	1
16	Cable Cross Plate 1	02123013P	1
17	Cable Cross Plate 2	02123014P	1
18	Right Side Plate	0130509901P	1
19	4-Way Valve Assy	03073338	1
20	4-Way Valve	430004032	1
21	Electronic Expansion Valve	07135228	1
22	Electric Expand Valve Fitting	4300876704	1
23	Rear Grill	01475014	1
24	Condenser Assy	01100200193	1
25	Compressor Overload Protector(External)	00180030	1
	Compressor Overload Protector(External)	00183031	1
	Compressor Overload Protector(External)	00183032	1
26	Clapboard Sub-Assy	01233090	1
27	Top Cover Plate	01253443	1
28	Motor Suport Spot Welding Sub-assy	0170301002	1
29	Electric Box Cover Sub-Assy	0260309601	1
30	Main Board	30138000535	1
31	Radiator	49010065	1
32	Electric Box 1	20113005	1
33	Terminal Board	42010313	1
34	Capacitor Box Sub-Assy	01403767	1
35	Wire Clamp	71010003	2
36	Electric Box Assy	10000100198	1
37	Temperature Sensor	39000310	1

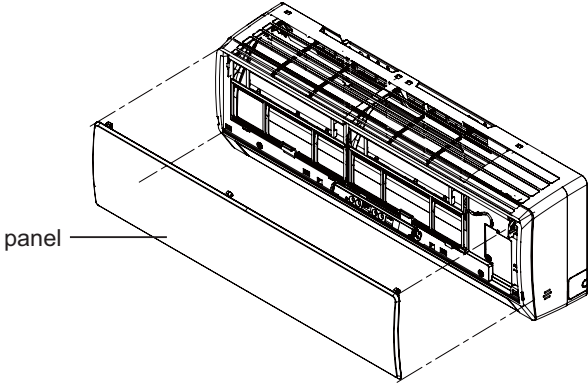
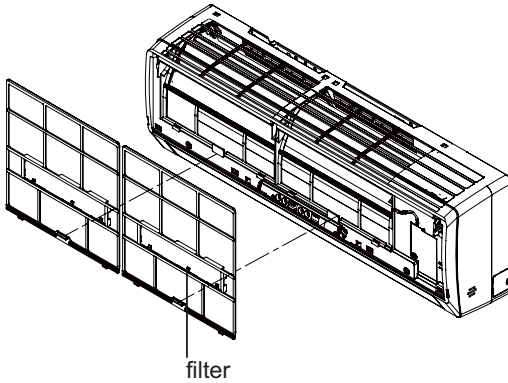
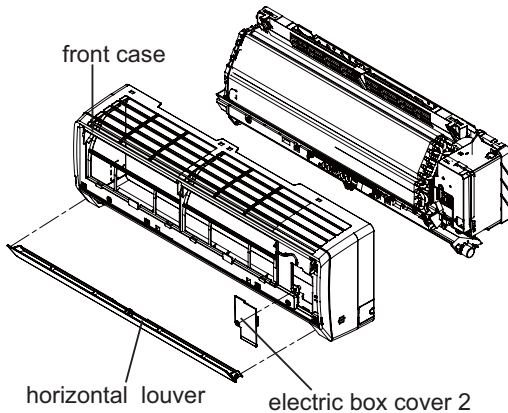
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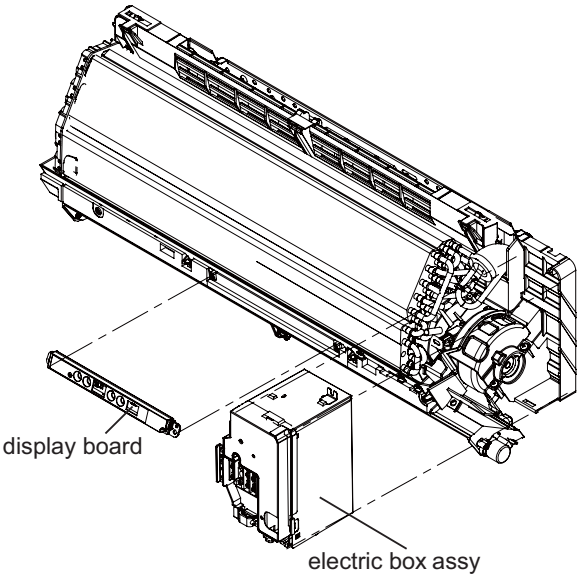
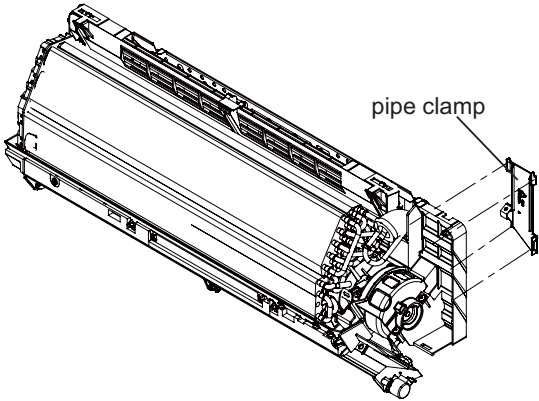
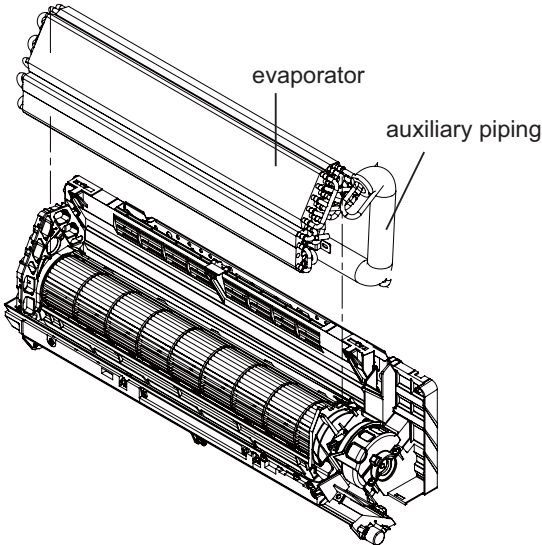
11. Removal Procedure

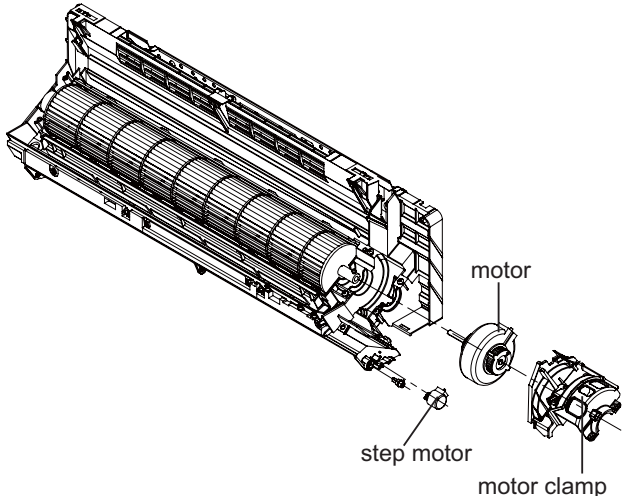
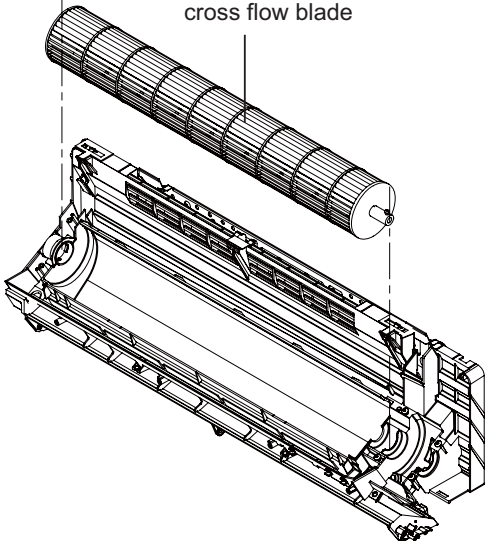
11.1 Removal Procedure of Indoor Unit




Caution: discharge the refrigerant completely before removal.

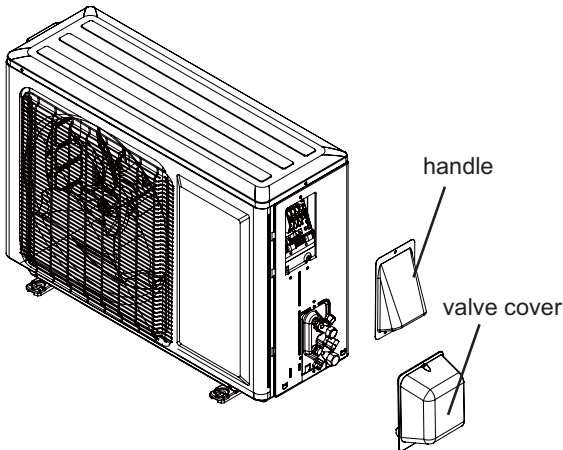
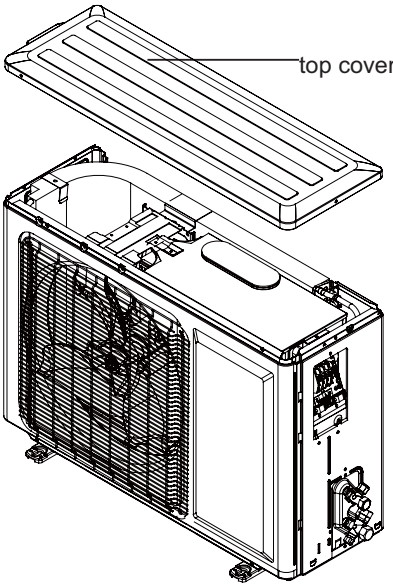
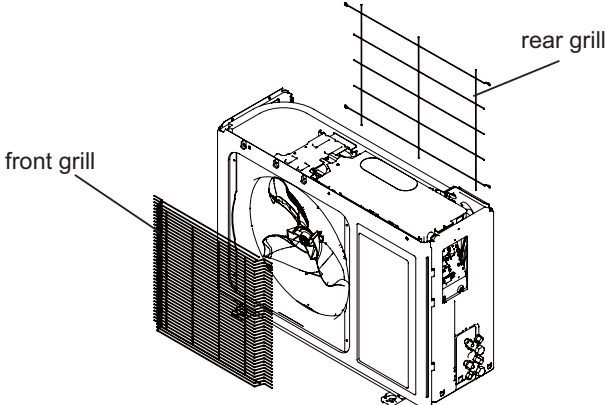
Steps	Procedure
1.Remove panel	
<p>Open the front panel.Push the rotor shaft on both sides of the panel to make it separate from the groove .Remove the panel.</p>	
2.Remove filter	
<p>Loosen the clasp of the filter.Push the filter inward and then draw it upward to remove it.</p>	
3.Remove horizontal louver and front case	
<p>Remove axial sleeve of horizontal louver. Bend the louver outwards and then remove the louver.</p> <p>Loosen the screws of the electric box cover2 with screwdriver.Remove the electric box cover2.</p> <p>Open the screw cap on the front case. Remove the screws fixing the front case. Loosen the six clasps of the front case. Remove the front case.</p>	

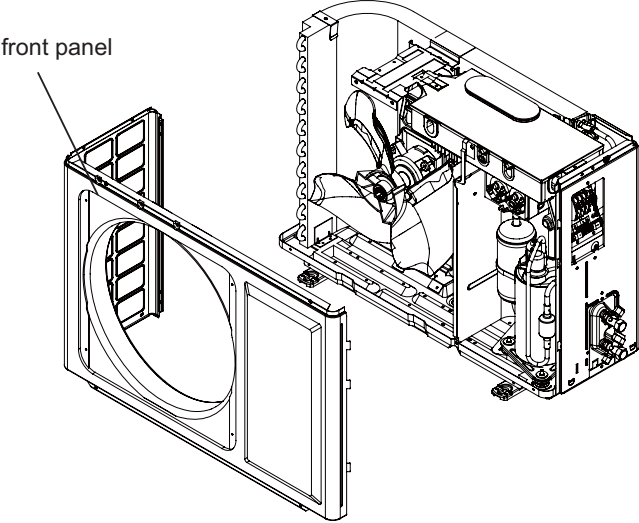
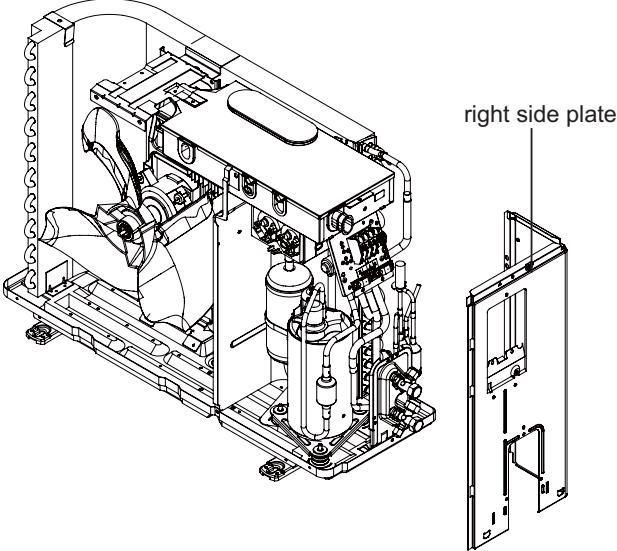
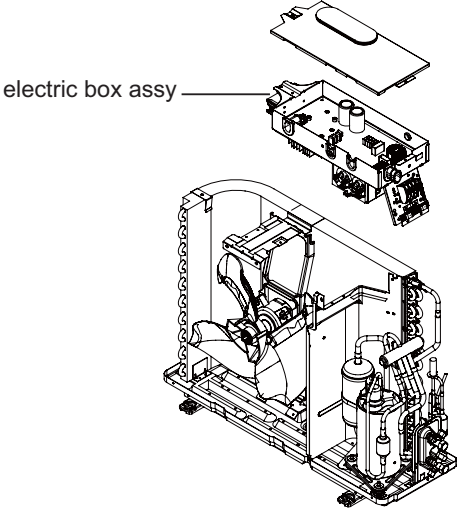
Steps	Procedure	
4.Remove electric box assy		
	<p>Remove the screws of the electric box assy.Remove the screws at the joint of the earthing wire and evaporator.Looseen the clasp at the joint of the electric box cover and the electric box.Remove the 2 screws of the display.Remove the electric box assy.</p>	
5.Remove evaporator		
1	<p>Remove the screws of the press plate of connecting pipe.Remove press plate of connecting pipe.</p>	
2	<p>Remove the 3 screws at the joint of the evaporator and rear case.Adjust slightly the pipe on the evaporator.Remove the evaporator.</p>	

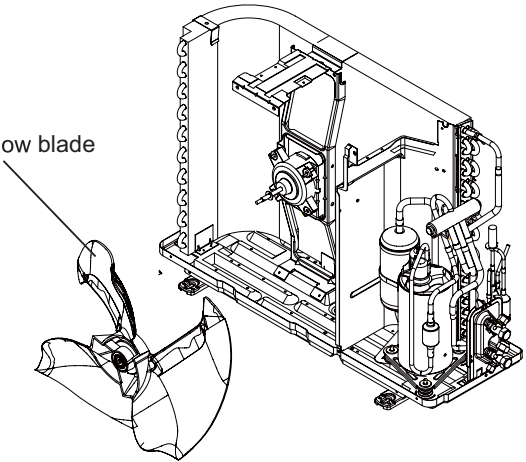
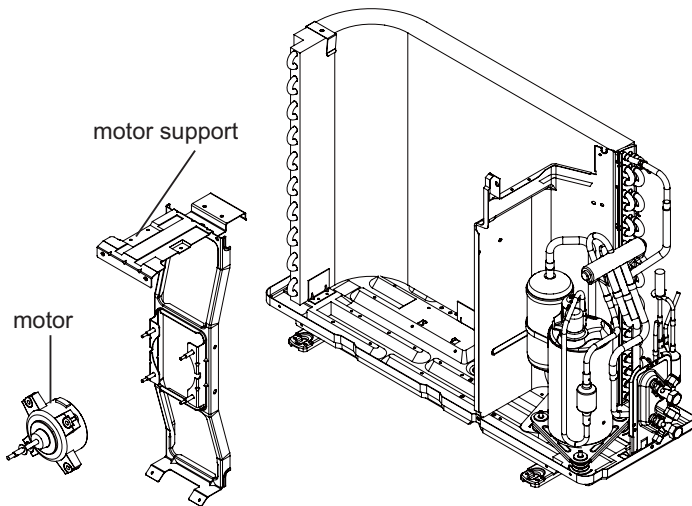
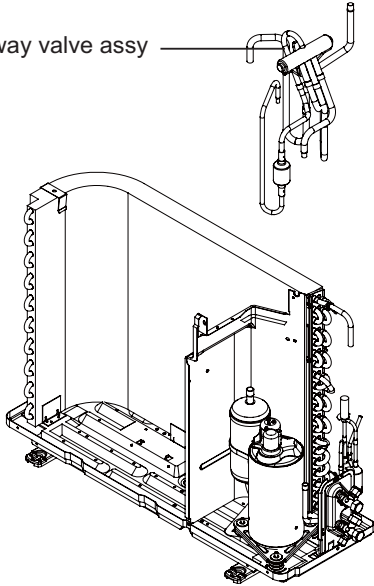
Steps	Procedure	
6.Remove motor and cross flow blade		
1	<p>Remove screws of step motor and then remove the motor.</p> <p>Remove the screw of the motor clamp and then remove the clamp.</p> <p>Remove the screws at the joint of the cross flow blade and the motor. Take down the motor.</p>	 <p>The diagram illustrates the removal of the motor and motor clamp. It shows a perspective view of the main assembly with a motor and a motor clamp attached. Callouts identify the 'motor', 'step motor', and 'motor clamp'. A separate exploded view shows the motor and motor clamp being removed from the assembly.</p>
2	<p>Remove the cross flow blade.</p>	 <p>The diagram illustrates the removal of the cross flow blade. It shows a perspective view of the main assembly with a cross flow blade attached. A callout identifies the 'cross flow blade'. A separate exploded view shows the cross flow blade being removed from the assembly.</p>

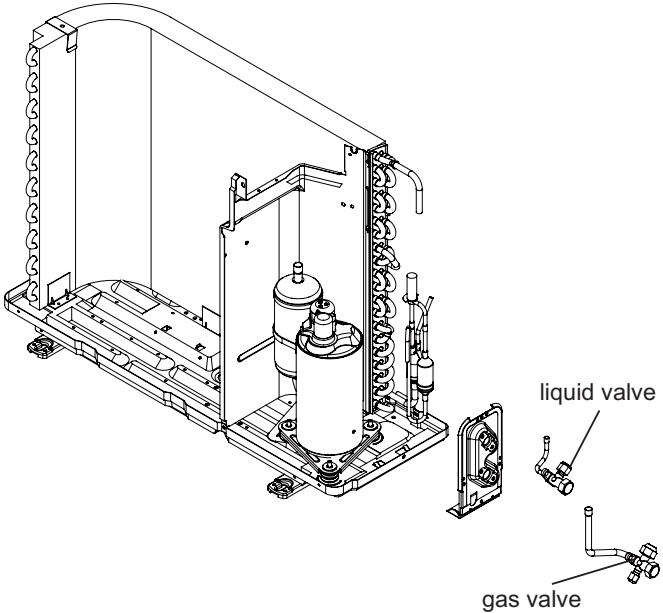
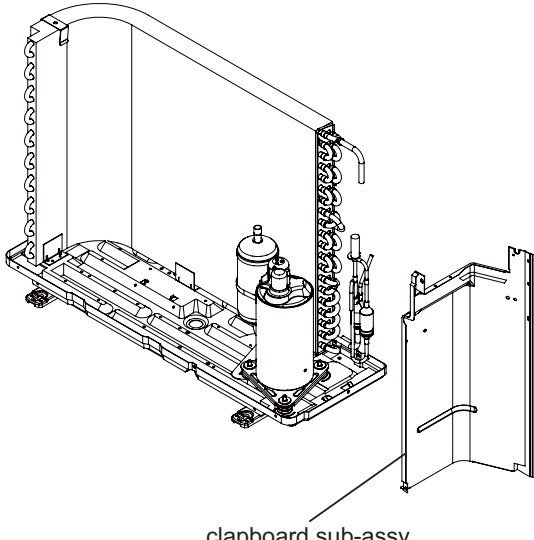
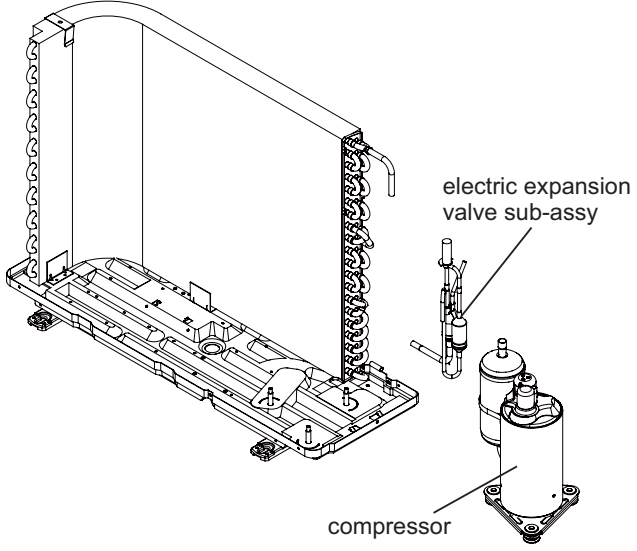
11.2 Removal Procedure of Outdoor Unit

 **Warning:** Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

Steps	Procedure	
1.Remove valve cover and handle		
2.Remove top cover		
3.Remove rear grill and front grill		

Steps	Procedure	
4.Remove front panel		
	<p>Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.</p>	
5.Remove right side plate		
	<p>Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.</p>	
6.Remove electric box assy		
	<p>Remove the 2 screws fixing the cover of electric box. Lift to remove the cover. Loosen the wire and disconnect the terminal. Lift to remove the electric box assy.</p>	

Steps	Procedure	
8.Remove motor and motor support		
	<p>Remove the nut fixing the blade and thenremove the axial flow blade.</p>	<p>axial flow blade</p> 
8.Remove motor and motor support		
	<p>Remove the 4 tapping screws fixing the motor.Pull out the lead-out wire and remove themotor. Remove the 2 tapping screws fixingthe motor support. Lift motor support to re-move it.</p>	<p>motor support</p> <p>motor</p> 
9.Remove 4-way valve assy		
	<p>UnscREW the fastening nut of the 4-way ValveAssy coil and remove the coil. Wrap the 4-way Valve Assy with wet cotton and unsolderthe 4 weld spots connecting the 4-way ValveAssy to take it out.(Note: Refrigerant shouldbe discharged firstly.) Welding processshould be as quickly as possible and keepwrapping cotton wet all the time. Be sure notto burn out the lead-out wire of compressor.</p>	<p>4-way valve assy</p> 

Steps	Procedure
<p>10.Remove gas valve and liquid valve</p> <p>Twist off the 2 bolts fixing the valve sub-assy. Unsolder the soldering joint between gas valve and air-return pipe and then remove the gas valve. (note: when unsoldering the soldering joint, wrap the gas valve with wet cloth completely to avoid the damage to valve, and release all refrigerant completely at first). Unsolder the soldering joint between liquid valve and connection pipe of liquid valve, and then remove the liquid valve.</p>	 <p>liquid valve</p> <p>gas valve</p>
<p>11.Remove clapboard sub-assy</p> <p>Loosen the screws of the clapboard sub-assy. The clapboard sub-assy has a hook on the lower side. Lift and pull the clapboard sub-assy to remove.</p>	 <p>clapboard sub-assy</p>
<p>12.Remove compressor and electric expansion valve sub-assy</p> <p>Remove the 3 footing screws of the compressor and remove the compressor. Then remove the electric expansion valve sub-assy.</p>	 <p>electric expansion valve sub-assy</p> <p>compressor</p>

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: $T_f = T_c \times 1.8 + 32$

Set temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

Ambient temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
32/33	32	0	55/56	55.4	13	79/80	78.8	26
34/35	33.8	1	57/58	57.2	14	81	80.6	27
36	35.6	2	59/60	59	15	82/83	82.4	28
37/38	37.4	3	61/62	60.8	16	84/85	84.2	29
39/40	39.2	4	63	62.6	17	86/87	86	30
41/42	41	5	64/65	64.4	18	88/89	87.8	31
43/44	42.8	6	66/67	66.2	19	90	89.6	32
45	44.6	7	68/69	68	20	91/92	91.4	33
46/47	46.4	8	70/71	69.8	21	93/94	93.2	34
48/49	48.2	9	72	71.6	22	95/96	95	35
50/51	50	10	73/74	73.4	23	97/98	96.8	36
52/53	51.8	11	75/76	75.2	24	99	98.6	37
54	53.6	12	77/78	77	25			

Appendix 2: Configuration of Connection Pipe

- Standard length of connection pipe
 - 5m, 7.5m, 8m.
- Min. length of connection pipe is 3m.
- Max. length of connection pipe and max. high difference.
- The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
 - After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
 - The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

Cooling capacity	Max length of connection pipe	Max height difference
5000 Btu/h(1465 W)	49.21ft	16.40ft
7000 Btu/h(2051 W)	49.21ft	16.40ft
9000 Btu/h(2637 W)	49.21ft	32.81ft
12000 Btu/h(3516 W)	65.61ft	32.81ft
18000 Btu/h(5274 W)	82.02ft	32.81ft
24000 Btu/h(7032 W)	82.02ft	32.81ft
28000 Btu/h(8204 W)	98.43ft	32.81ft
36000 Btu/h(10548 W)	98.43ft	65.61ft
42000 Btu/h(12306 W)	98.43ft	65.61ft
48000 Btu/h(14064 W)	98.43ft	65.61ft

- When the length of connection pipe is above 5m, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.
- Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(inch)	Gas pipe(inch)	Cooling only(g/m)	Cooling and heating(g/m)
Φ0.24	Φ0.37 or Φ0.47	15	20
Φ0.24 or Φ0.37	Φ0.63 or Φ0.75	15	20
Φ0.47	Φ0.75 or Φ0.87	30	120
Φ0.63	Φ1.00 or Φ1.25	60	120
Φ0.75	/	250	250
Φ0.87	/	350	350

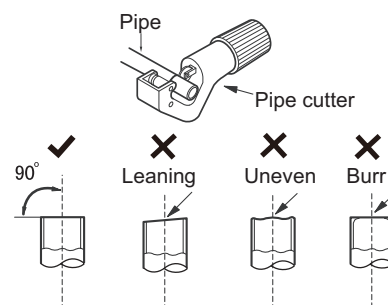
Appendix 3: Pipe Expanding Method

⚠ Note:

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

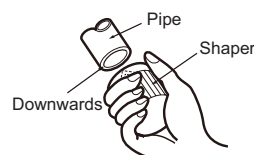
A: Cut the pip

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B: Remove the burrs

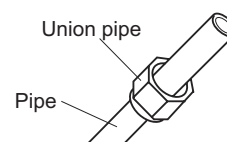
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

D: Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



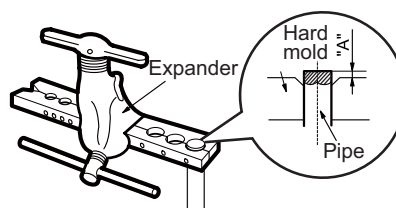
E: Expand the port

- Expand the port with expander.

⚠ Note:

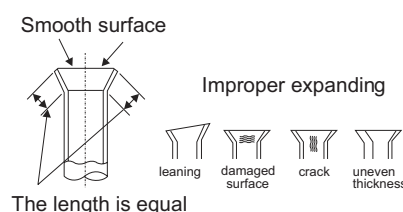
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(inch)	A(inch)	
	Max	Min
Φ0.24 (1/4")	0.054	0.028
Φ0.37 (3/8")	0.063	0.039
Φ0.47 (1/2")	0.071	0.039
Φ0.63 (5/8")	0.095	0.087



F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 4: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor (15K)

Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)
-2.2	138.1		68	18.75		138.2	3.848		208.4	1.071
-0.4	128.6		69.8	17.93		140	3.711		210.2	1.039
1.4	121.6		71.6	17.14		141.8	3.579		212	1.009
3.2	115		73.4	16.39		143.6	3.454		213.8	0.98
5	108.7		75.2	15.68		145.4	3.333		215.6	0.952
6.8	102.9		77	15		147.2	3.217		217.4	0.925
8.6	97.4		78.8	14.36		149	3.105		219.2	0.898
10.4	92.22		80.6	13.74		150.8	2.998		221	0.873
12.2	87.35		82.4	13.16		152.6	2.896		222.8	0.848
14	82.75		84.2	12.6		154.4	2.797		224.6	0.825
15.8	78.43		86	12.07		156.2	2.702		226.4	0.802
17.6	74.35		87.8	11.57		158	2.611		228.2	0.779
19.4	70.5		89.6	11.09		159.8	2.523		230	0.758
21.2	66.88		91.4	10.63		161.6	2.439		231.8	0.737
23	63.46		93.2	10.2		163.4	2.358		233.6	0.717
24.8	60.23		95	9.779		165.2	2.28		235.4	0.697
26.6	57.18		96.8	9.382		167	2.206		237.2	0.678
28.4	54.31		98.6	9.003		168.8	2.133		239	0.66
30.2	51.59		100.4	8.642		170.6	2.064		240.8	0.642
32	49.02		102.2	8.297		172.4	1.997		242.6	0.625
33.8	46.6		104	7.967		174.2	1.933		244.4	0.608
35.6	44.31		105.8	7.653		176	1.871		246.2	0.592
37.4	42.14		107.6	7.352		177.8	1.811		248	0.577
39.2	40.09		109.4	7.065		179.6	1.754		249.8	0.561
41	38.15		111.2	6.791		181.4	1.699		251.6	0.547
42.8	36.32		113	6.529		183.2	1.645		253.4	0.532
44.6	34.58		114.8	6.278		185	1.594		255.2	0.519
46.4	32.94		116.6	6.038		186.8	1.544		257	0.505
48.2	31.38		118.4	5.809		188.6	1.497		258.8	0.492
50	29.9		120.2	5.589		190.4	1.451		260.6	0.48
51.8	28.51		122	5.379		192.2	1.408		262.4	0.467
53.6	27.18		123.8	5.197		194	1.363		264.2	0.456
55.4	25.92		125.6	4.986		195.8	1.322		266	0.444
57.2	24.73		127.4	4.802		197.6	1.282		267.8	0.433
59	23.6		129.2	4.625		199.4	1.244		269.6	0.422
60.8	22.53		131	4.456		201.2	1.207		271.4	0.412
62.6	21.51		132.8	4.294		203	1.171		273.2	0.401
64.4	20.54		134.6	4.139		204.8	1.136		275	0.391
66.2	19.63		136.4	3.99		206.6	1.103		276.8	0.382

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)
-2.2	181.4		68	25.01		138.2	5.13
-0.4	171.4		69.8	23.9		140	4.948
1.4	162.1		71.6	22.85		141.8	4.773
3.2	153.3		73.4	21.85		143.6	4.605
5	145		75.2	20.9		145.4	4.443
6.8	137.2		77	20		147.2	4.289
8.6	129.9		78.8	19.14		149	4.14
10.4	123		80.6	18.13		150.8	3.998
12.2	116.5		82.4	17.55		152.6	3.861
14	110.3		84.2	16.8		154.4	3.729
15.8	104.6		86	16.1		156.2	3.603
17.6	99.13		87.8	15.43		158	3.481
19.4	94		89.6	14.79		159.8	3.364
21.2	89.17		91.4	14.18		161.6	3.252
23	84.61		93.2	13.59		163.4	3.144
24.8	80.31		95	13.04		165.2	3.04
26.6	76.24		96.8	12.51		167	2.94
28.4	72.41		98.6	12		168.8	2.844
30.2	68.79		100.4	11.52		170.6	2.752
32	65.37		102.2	11.06		172.4	2.663
33.8	62.13		104	10.62		174.2	2.577
35.6	59.08		105.8	10.2		176	2.495
37.4	56.19		107.6	9.803		177.8	2.415
39.2	53.46		109.4	9.42		179.6	2.339
41	50.87		111.2	9.054		181.4	2.265
42.8	48.42		113	8.705		183.2	2.194
44.6	46.11		114.8	8.37		185	2.125
46.4	43.92		116.6	8.051		186.8	2.059
48.2	41.84		118.4	7.745		188.6	1.996
50	39.87		120.2	7.453		190.4	1.934
51.8	38.01		122	7.173		192.2	1.875
53.6	36.24		123.8	6.905		194	1.818
55.4	34.57		125.6	6.648		195.8	1.736
57.2	32.98		127.4	6.403		197.6	1.71
59	31.47		129.2	6.167		199.4	1.658
60.8	30.04		131	5.942		201.2	1.609
62.6	28.68		132.8	5.726		203	1.561
64.4	27.39		134.6	5.519		204.8	1.515
66.2	26.17		136.4	5.32		206.6	1.47
						208.4	1.427
						210.2	1.386
						212	1.346
						213.8	1.307
						215.6	1.269
						217.4	1.233
						219.2	1.198
						221	1.164
						222.8	1.131
						224.6	1.099
						226.4	1.069
						228.2	1.039
						230	1.01
						231.8	0.983
						233.6	0.956
						235.4	0.93
						237.2	0.904
						239	0.88
						240.8	0.856
						242.6	0.833
						244.4	0.811
						246.2	0.77
						248	0.769
						249.8	0.746
						251.6	0.729
						253.4	0.71
						255.2	0.692
						257	0.674
						258.8	0.658
						260.6	0.64
						262.4	0.623
						264.2	0.607
						266	0.592
						267.8	0.577
						269.6	0.563
						271.4	0.549
						273.2	0.535
						275	0.521
						276.8	0.509

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)		Temp(°F)	Resistance(kΩ)
-20.2	853.5		50	98		120.2	18.34		190.4	4.75
-18.4	799.8		51.8	93.42		122	17.65		192.2	4.61
-16.6	750		53.6	89.07		123.8	16.99		194	4.47
-14.8	703.8		55.4	84.95		125.6	16.36		195.8	4.33
-13	660.8		57.2	81.05		127.4	15.75		197.6	4.20
-11.2	620.8		59	77.35		129.2	15.17		199.4	4.08
-9.4	580.6		60.8	73.83		131	14.62		201.2	3.96
-7.6	548.9		62.6	70.5		132.8	14.09		203	3.84
-5.8	516.6		64.4	67.34		134.6	13.58		204.8	3.73
-4	486.5		66.2	64.33		136.4	13.09		206.6	3.62
-2.2	458.3		68	61.48		138.2	12.62		208.4	3.51
-0.4	432		69.8	58.77		140	12.17		210.2	3.41
1.4	407.4		71.6	56.19		141.8	11.74		212	3.32
3.2	384.5		73.4	53.74		143.6	11.32		213.8	3.22
5	362.9		75.2	51.41		145.4	10.93		215.6	3.13
6.8	342.8		77	49.19		147.2	10.54		217.4	3.04
8.6	323.9		78.8	47.08		149	10.18		219.2	2.96
10.4	306.2		80.6	45.07		150.8	9.83		221	2.87
12.2	289.6		82.4	43.16		152.6	9.49		222.8	2.79
14	274		84.2	41.34		154.4	9.17		224.6	2.72
15.8	259.3		86	39.61		156.2	8.85		226.4	2.64
17.6	245.6		87.8	37.96		158	8.56		228.2	2.57
19.4	232.6		89.6	36.38		159.8	8.27		230	2.50
21.2	220.5		91.4	34.88		161.6	7.99		231.8	2.43
23	209		93.2	33.45		163.4	7.73		233.6	2.37
24.8	198.3		95	32.09		165.2	7.47		235.4	2.30
26.6	199.1		96.8	30.79		167	7.22		237.2	2.24
28.4	178.5		98.6	29.54		168.8	7.00		239	2.18
30.2	169.5		100.4	28.36		170.6	6.76		240.8	2.12
32	161		102.2	27.23		172.4	6.54		242.6	2.07
33.8	153		104	26.15		174.2	6.33		244.4	2.02
35.6	145.4		105.8	25.11		176	6.13		246.2	1.96
37.4	138.3		107.6	24.13		177.8	5.93		248	1.91
39.2	131.5		109.4	23.19		179.6	5.75		249.8	1.86
41	125.1		111.2	22.29		181.4	5.57		251.6	1.82
42.8	119.1		113	21.43		183.2	5.39		253.4	1.77
44.6	113.4		114.8	20.6		185	5.22		255.2	1.73
46.4	108		116.6	19.81		186.8	5.06		257	1.68
48.2	102.8		118.4	19.06		188.6	4.90		258.8	1.64

Appendix 5: Wired Controller

If the product you bought is equipped with wired controller, please refer to the following introductions of wired controller.

1 Displaying Part



Fig1.1.1 Outline of wired controller

1.1 LCD Display of Wired Controller

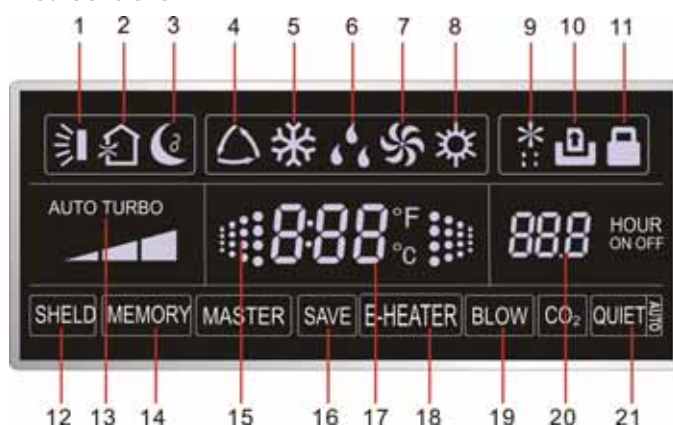


Fig.1.1.2 LCD display

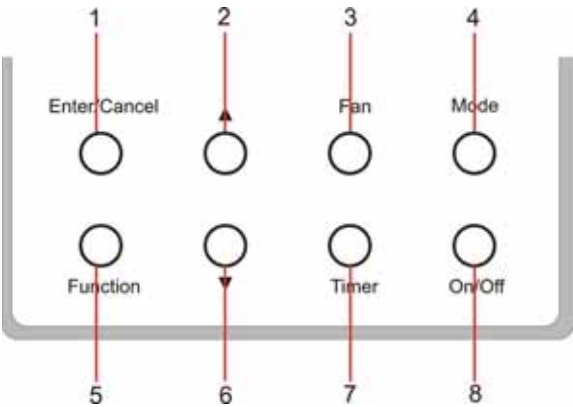
1.2 Instruction to LCD Display

Table 1.1

No.	Symbols	Description	No.	Symbols	Description
1		Swing function	12	SHIELD	Shield functions (Button operation, temperature setting, On/Off operation, Mode setting are disabled by the remote monitoring system.)
2		Air exchange function (this function is yet unavailable for this unit).	13	Turbo	Turbo function state
3		Sleep function (Only sleep 1).	14	MEMORY	Memory function (The indoor unit resumes the original setting state after power failure and then power recovery).
4		Each kind of running mode of indoor unit (auto mode)	15		It blinks under on state of the unit without operation of any button.
5		Cooling mode	16	SAVE	Energy-saving function (this function is yet unavailable for this unit).
6		Dry mode	17		Ambient/setting temperature value
7		Fan mode	18	E-HEATER	Electric auxiliary heating function.
8		Heating mode	19	BLOW	Blow function.
9		Defrosting function for the outdoor unit.	20		Timing value.
10		Gate-control function (this function is yet unavailable for this unit).	21	QUIET	Quiet function (two types: quiet and auto quiet) (this function is yet unavailable for this unit).
11		Lock function.			

2 Buttons

2.1 Layout of Buttons



2.2 Functions of Buttons

Table 2.1

No.	Name	Function
1	Enter/Cancel	Function selection and cancellation.
2	▲	① . Running temperature setting of the indoor unit, range:16~30°C(61~86°F). ② . Timer setting, range:0.5-24 hr.
6	▼	
3	Fan	Setting of the high/middle/low/auto fan speed.
4	Mode	Setting of the Cooling/Heating/Fan/Dry/Auto mode of the indoor unit.
5	Function	Switchover among the functions of Turbo/Save/E-heater/Blow etc..
7	Timer	Timer setting.
8	On/Off	Turn on/off the indoor unit
4+2	▲+Mode	Press them for 5s under off state of the unit to enter/cancel the Memory function(If memory is set, indoor unit after power failure and then power recovery will resume the original setting state. If not, the indoor unit is defaulted to be off after power recovery. Memory off is default before delivery.).
3+6	Fan+▼	By pressing them at the same time under off state of the unit, ❄ will be displayed on the wired controller for the cooling only unit, while 🔥 will be displayed on the wired controller for the cooling and heating unit.
2+6	▲+▼	Upon startup of the unit without malfunction or under off state of the unit,press them at the same time for 5s to enter the lock state, in which case,any other buttons won't respond the press. Repress them for 5s to quit this state.

3 Operation Instructions

3.1 On/Off

Press On/Off to turn on the unit and turn it off by another press.

Note: The state shown in Fig.3.1.1 indicates the “Off” state of the unit after power on. The state shown in Fig.3.1.2 indicates the “On” state of the unit after power on.



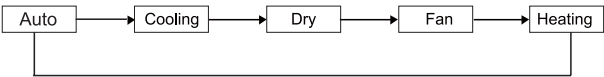
Fig.3.1.1 “Off” State



Fig.3.1.2 “On” State

3.2 Mode Setting

Under ON state of the unit, press the Mode to switch the operation modes as the following sequence: Auto–Cooling–Dry–Fan–Heating.



3.3 Temperature Setting

Press ▲ or ▼ to increase/decrease the preset temperature. If pressing either of them continuously, the temperature will be increased or decreased by 1°C every 0.5s, as shown in Fig.3.3.1.

In the Cooling, Dry, Fan or Heating mode, the temperature setting range is 16°C~30°C(61°F~86°F).

In the Auto mode, the setting temperature is unadjustable.



Fig.3.3.1

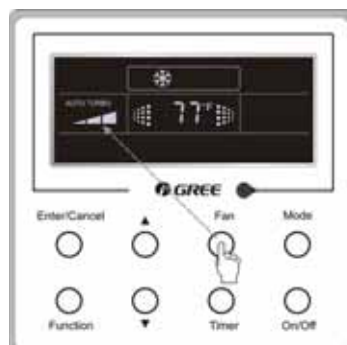
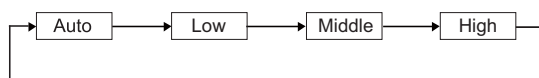


Fig.3.4.1

3.4 Fan Setting

Under the “On” state of the unit, press Fan and then fan speed of the indoor unit will change circularly as shown in Fig.3.4.1.



3.5 Timer Setting

Under on-state of the unit, Press Timer button to set timer off of the unit. Under off-state of the unit, press Timer button to set timer on of the unit in the same way.

• Timer on setting:

Under off-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, with ON blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Timer off setting:

Under on-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, with OFF blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Cancel timer:

After setting of timer, if Timer button is pressed, LCD won't display xx. Hour so that timer setting is canceled.

Timer off setting under the “On” state of the unit is shown as Fig.3.5.1.

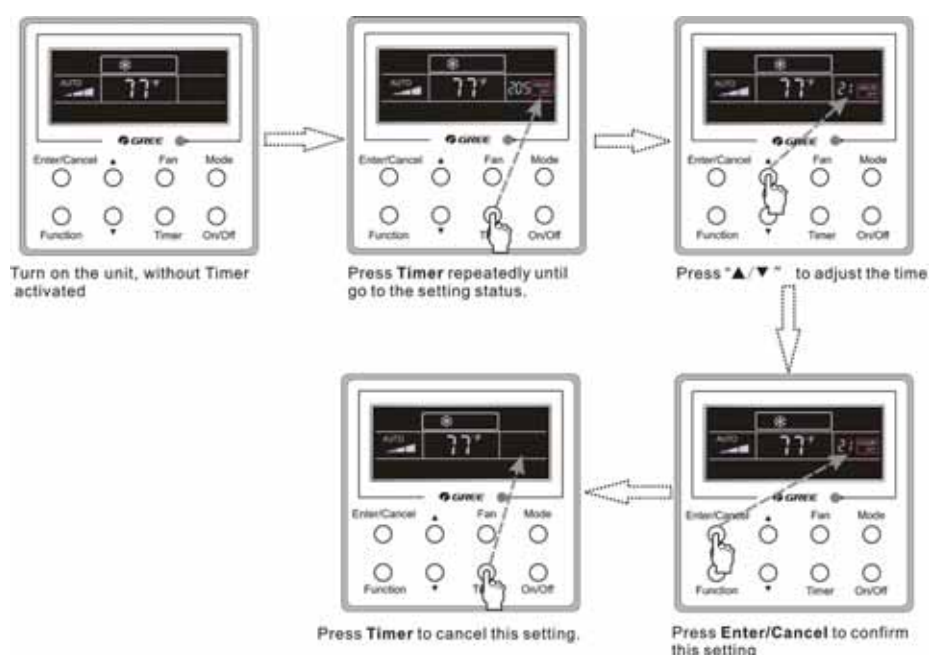


Fig.3.5.1 Timer off Setting under the “On” State of the Unit

Timer on setting under the “Off” state of the unit is shown as Fig.3.5.2.

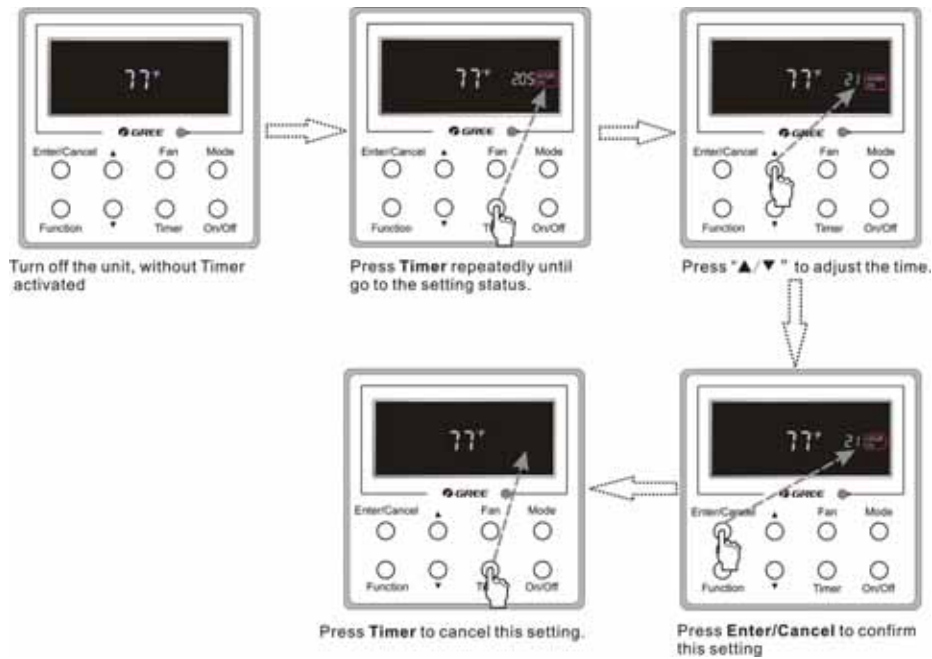


Fig.3.5.2 Timer on Setting under the “Off” State of the Unit

Timer range: 0.5-24hr. Every press of ▲ or ▼ will make the set time increased or decreased by 0.5hr. If either of them is pressed continuously, the set time will increase/ decrease by 0.5hr every 0.5s.

3.6 Swing Setting

Swing On: Press Function under on state of the unit to activate the swing function. In this case, will blink. After that, press Enter/Cancel to make a confirmation.

Swing Off: When the Swing function is on, press Function to enter the Swing setting interface, with blinking. After that, press Enter/Cancel to cancel this function. Swing setting is shown as Fig.3.6.1.

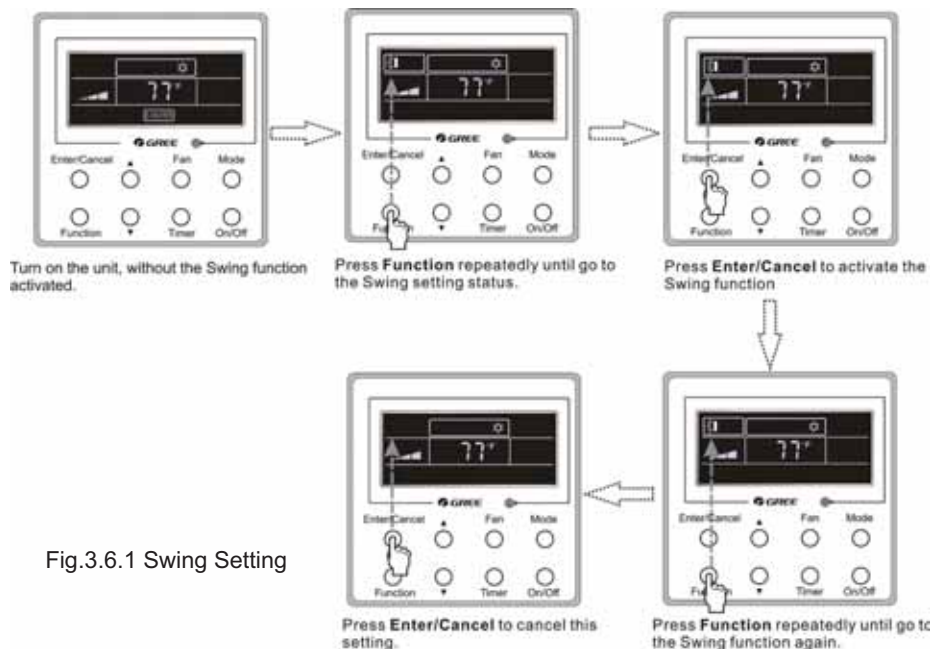


Fig.3.6.1 Swing Setting

Notes:

- ① . Sleep, Turbo or Blow setting is the same as the Swing setting.
- ② . After the setting has been done, it has to press the key “Enter/Cancel” to back to the setting status or quit automatically five seconds later.

3.7 Sleep Setting

Sleep on: Press Function under the On state of the unit till the unit enters the Sleep setting state. After that, press Enter/Cancel to confirm this setting.

Sleep off: When the Sleep function is activated, press Function to enter the Sleep setting status. After that, press Enter/Cancel to cancel this function.

In the Cooling or Dry mode, the temperature will increase by 1°C(2°F) after the unit runs under Sleep1 for 1hr and 1°C(2°F) after another 1hr. After that, the unit will run at this temperature.

In the Heating mode, the temperature will decrease by 1°C(2°F) after the unit runs under Sleep 1 for 1hr and 1°C(2°F) after another 1hr. After that, the unit will run at this temperature.

Sleep setting is shown as Fig.3.7.1.

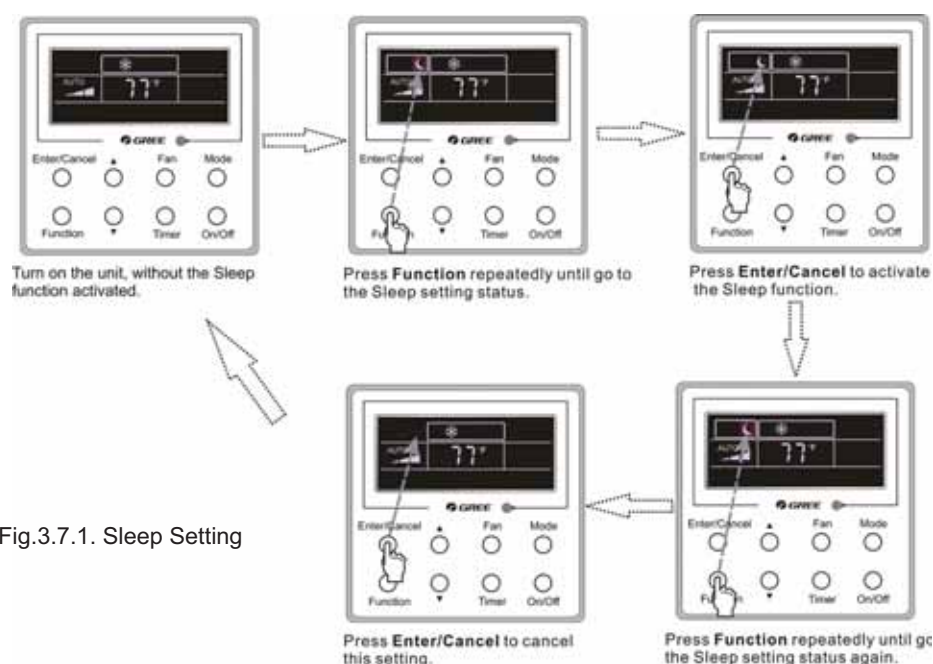


Fig.3.7.1. Sleep Setting

3.8 Turbo Setting

Turbo function: The unit at the high fan speed can realize quick cooling or heating so that the room temperature can quickly approach the setting value.

In the Cooling or Heating mode, press Function till the unit enters the Turbo setting status and then press Enter/Cancel to confirm the setting.

When the Turbo function is activated, press Function to enter the Turbo setting status and then press Enter/Cancel to cancel this function. Turbo function setting is as shown in Fig.3.8.1.

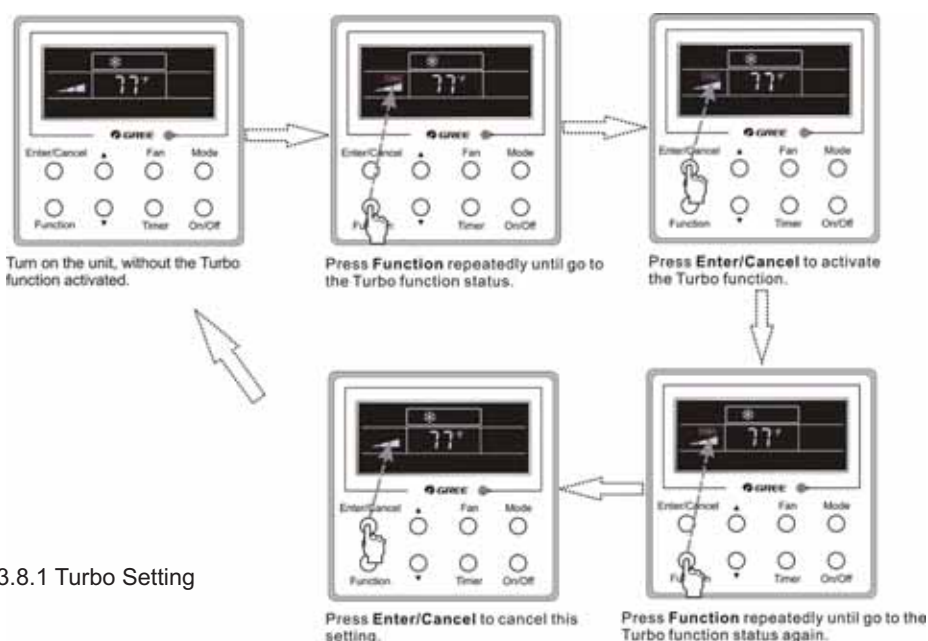


Fig.3.8.1 Turbo Setting

3.9 E-heater Setting

E-heater (auxiliary electric heating function): In the Heating mode, E-heater is allowed to be turned on for improvement of efficiency. Once the wired controller or the remote controller enters the Heating mode, this function will be turned on automatically. Press Function in the Heating mode to enter the E-heater setting interface and then press Enter/Cancel to cancel this function. Press Function to enter the E-heater setting status, if the E-heater function is not activated, and then press Enter/Cancel to activate it. The setting of this function is shown as Fig.3.9.1 below:

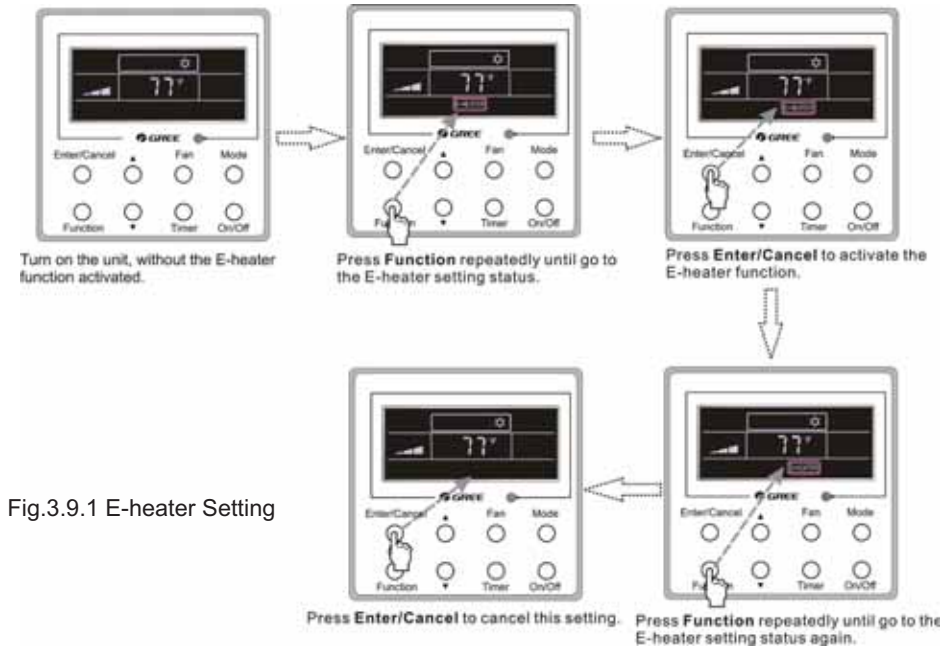


Fig.3.9.1 E-heater Setting

3.10 Blow Setting

Blow function: After the unit is turned off, the water in evaporator of indoor unit will be automatically evaporated to avoid mildew. In the Cooling or Dry mode, press Function till the unit enters the Blow setting status and then press Enter/Cancel to active this function. When the Blow function is activated, press Function to the Blow setting status and then press Enter/Cancel to cancel this function. Blow function setting is as shown in Fig.3.10.1

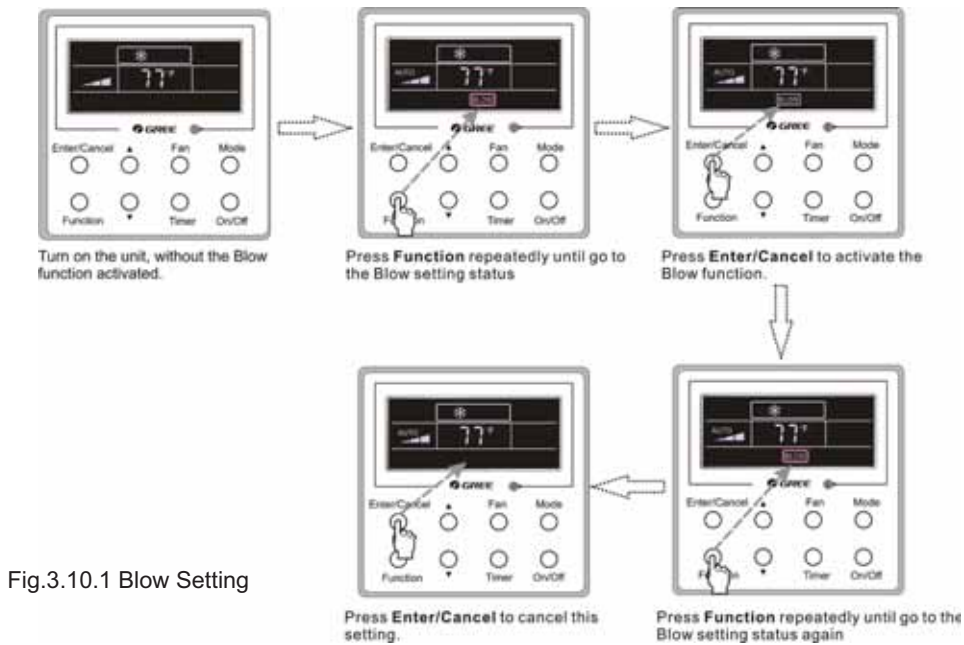


Fig.3.10.1 Blow Setting

Notes:

- ① . When the Blow function is activated, if turning off the unit by pressing On/Off or by the remote controller, the indoor fan will run at the low fan speed for 2 min, with "BLOW" displayed on the LCD. While, if the Blow function is deactivated, the indoor fan will be turned off directly.
- ② . Blow function is unavailable in the Fan or Heating mode.

3.11 Other Functions

a. Lock

Upon startup of the unit without malfunction or under the "Off" state of the unit, press ▲ and ▼ at the same time for 5s till the wired controller enters the Lock function. In this case, LCD displays .

After that, repress these two buttons at the same time for 5s to quit this function.

Under the Lock state, any other button press won't get any response.

b. Memory

Memory switchover: Under the "Off" state of the unit, press Mode and ▲ at the same time for 5s to switch memory states between memory on and memory off. When this function is activated, Memory will be displayed. If this function is not set, the unit will be under the "Off" state after power failure and then power recovery.

Memory recovery: If this function has been set for the wired controller, the wired controller after power failure will resume its original running state upon power recovery. Memory contents: On/Off, Mode, set temperature, set fan speed and Lock function.

4 Installation and Dismantlement

4.1 Connection of the Signal Line of the Wired Controller

- Open the cover of the electric control box of the indoor unit.
- Let the single line of the wired controller through the rubber ring.
- Connect the signal line of the wired control to the 4-pin socket of the indoor unit PCB.
- Tighten the signal wire with ties.
- The communication distance between the main board and the wired controller can be up to 20m(65.62ft.) (the standard distance is 8m(26.25ft.))

4.2 Installation of the Wired Controller

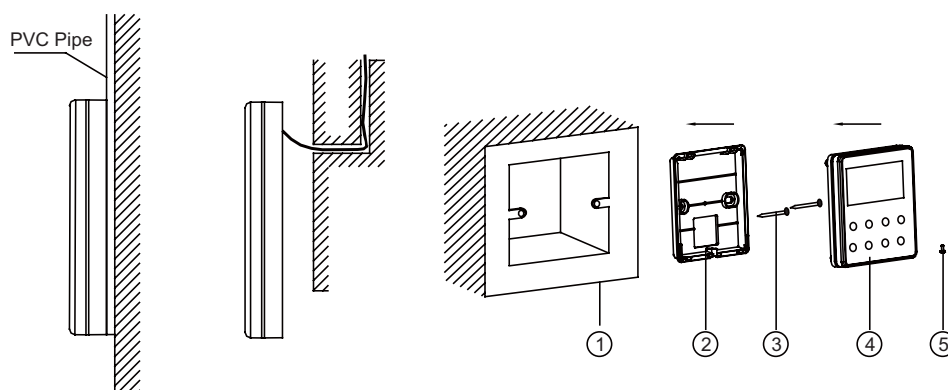


Fig.4.1 Accessories for the Installation of the Wired Controller

Table 4.1

No.	1	2	3	4	5
Name	Socket box embedded in the wall	Soleplate of the Wired Controller	Screw M4X25	Front Panel of the Wired Controller	Screw ST 2.9X6

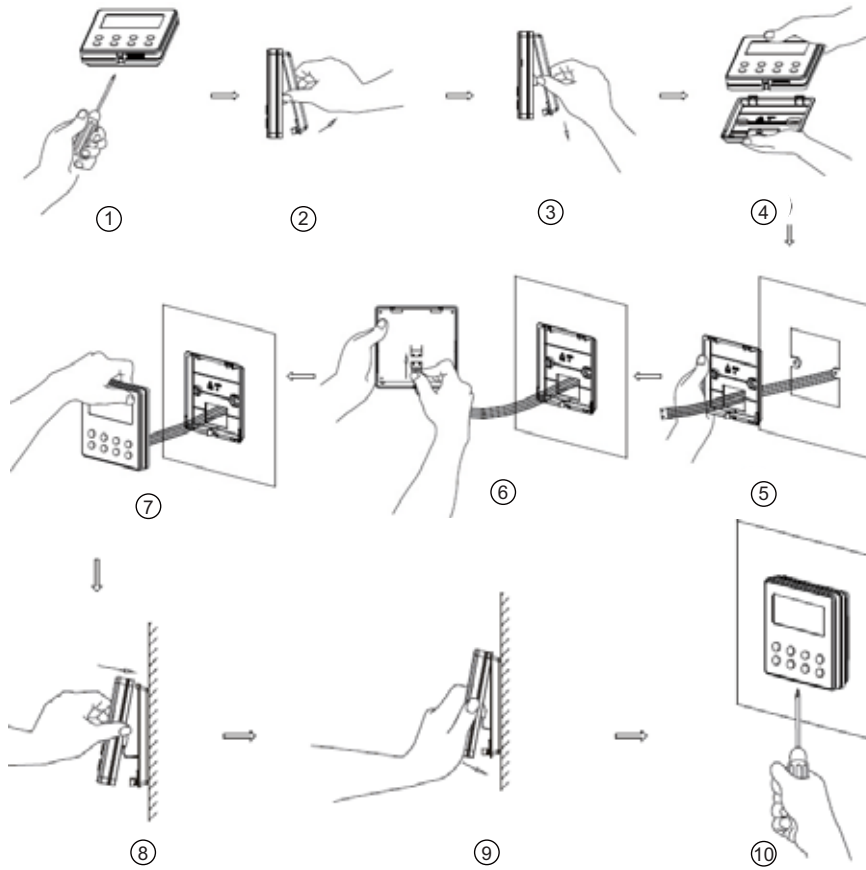


Fig.4.2

Fig.4.2 shows the installation steps of the wired controller, but there are some issues that need your attention.

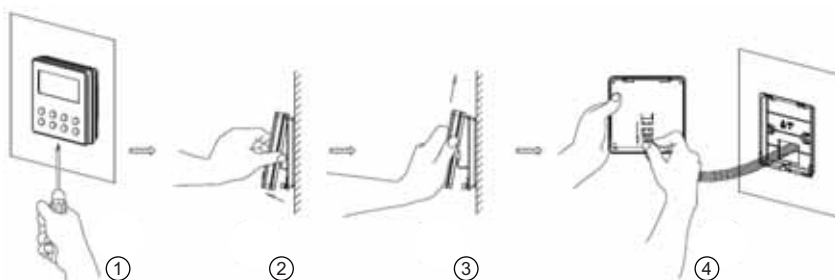
- 1) Prior to the installation, please firstly cut off the power supply of the wire buried in the installation hole, that is, no operation is allowed with electricity during the whole installation.
- 2) Pull out the four-core twisted pair line from the installation holes and then let it go through the rectangular hole behind the soleplate of the wired controller.
- 3) Stick the soleplate of the wired controller to the wall over the installation hole and then fix it with screws M4X25.
- 4) Insert the four-core twisted pair line into the slot of the wired controller and then buckle the front panel and the soleplate of the wired controller together.
- 5) Finally, fix the front panel and the soleplate of the wired controller tightly by screws ST2.9X6.

⚠ CAUTION!

Please pay special attention to the followings during the connection to avoid the malfunction of the air conditioning unit due to electromagnetic interference.

- ① . Separate the signal and communication lines of the wired controller from the power cord and connection lines between the indoor and outdoor unit, with a minimum interval of 20cm(7 7/8 inch), otherwise the communication of the unit will probably work abnormally.
- ② . If the air conditioning unit is installed where is vulnerable to electromagnetic interference, then the signal and communication lines of the wired controller must be the shielding twisted pair lines.

4.3 Dismantlement of the Wired Controller



5 Errors Display

If there is an error occurring during the operation of the system, the error code will be displayed on the LCD, as show in Fig.5.1. If multi errors occur at the same time, their codes will be displayed circularly.

Note: In event of any error, please turn off the unit and contact the professionally skilled personnel.



Fig.5.1

Error	Error Code	Error	Error Code
Return air temperature sensor open/ short circuited	F1	Drive board communication error	P6
evaporator temperature sensor open/ short circuited	F2	Compressor overheating protection	H3
Indoor unit liquid valve temperature sensor open/short circuited	b5	Indoor and outdoor units unmatched	LP
Indoor gas valve temperature sensor open/ short circuited	b7	Communication line misconnected or expansion valve error	dn
IPM temperature sensor open/short circuited	P7	Running mode conflict	E7
Outdoor ambient temperature sensor open/ short circuited	F3	Pump-down	Fo
Outdoor unit condenser mid-tube temperature sensor open/short circuited	F4	Jumper error	C5
Discharge temperature sensor open/ short circuited	F5	Forced defrosting	H1
Indoor and outdoor communication error	E6	Compressor startup failure	Lc
DC bus under-voltage protection	PL	High discharge temperature protection	E4
DC bus over-voltage protection	PH	Overload protection	E8
Compressor phase current sensing circuit error	U1	Whole unit over-current protection	E5
Compressor demagnetization protection	HE	Over phase current protection	P5
PFC protection	Hc	Compressor desynchronizing	H7
IPM Temperature Protection	P8	IPM Current protection	H5
Over-power protection	L9	Compressor phase loss/reversal unit protection	Ld
System charge shortage or blockage protection	F0	Frequency restricted/reduced with whole current protection	F8
Capacitor charging error	PU	Frequency restricted/reduced with IPM current protection	En
High pressure protection	E1	Frequency restricted/reduced with high discharge temperature	F9
Low pressure protection	E3	Frequency restricted/reduced with anti-freezing protection	FH
Compressor stalling	LE	Frequency restricted/reduced with overload protection	F6
Over-speeding	LF	Frequency restricted/reduced with IPM temperature protection	EU
Drive board temperature sensor error	PF	Indoor unit full water error	E9
AC contactor protection	P9	Anti-freezing protection	E2
Temperature drift protection	PE	AC input voltage abnormal	PP
Sensor connection protection	Pd	Whole unit current sensing circuit error	U5
DC bus voltage drop error	U3	4-way valve reversing error	U7
Outdoor fan 1 error protection	L3	Motor stalling	H6
Outdoor fan 2 error protection	LA	PG motor zero-crossing protection	U8

JF00302284



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